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SUNRISE IN THE EAST, SUNSET IN THE WEST:

How the Korean and British Shipbuilding Industries Changed Places in the 20th Century

Committee:

_____
William Roger Louis, Supervisor

_____
Gail Minault

_____
Toyin Falola

_____
Mark Metzler

_____
Robert Oppenheim

SUNRISE IN THE EAST, SUNSET IN THE WEST:

How the Korean and British Shipbuilding Industries Changed Places in the 20th Century

by

Dan Patrick McWiggins, B.A., M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

December 2013

DEDICATION

This dissertation is dedicated to the memories of

Walt W. and Elspeth Rostow

Their intellectual brilliance was exceeded only by their kindness.
It was an honor to know them and a privilege to be taught by them.

ACKNOWLEDGEMENTS

This dissertation has been a long time in the making and it would not have been possible without the help of many people around the world. I am particularly indebted to Professor William Roger Louis, who has been incredibly patient with me over the eight years it has taken to get this written. Regular work weeks of 60+ hours for years on end made finding the time to advance this project much more difficult than I anticipated. Professor Louis never lost faith that I would complete this project and his encouragement inspired me to keep going even when other commitments made completion look well-nigh impossible. Since without his support and advocacy this work would not have been completed, any future student finding it of interest owes Professor Louis a great deal of thanks. Being in the British Studies program with the greatest living scholar of the British Empire was a wonderful experience and one of the highlights of my life. I am more grateful than I can express for that opportunity.

Professor Gail Minault has been a wonderful sounding board for many intricate issues and has been extraordinarily generous with both her time and her knowledge in illuminating many areas with which I was unfamiliar. Her endearing combination of erudition and honesty, mingled with a wonderfully dry sense of humor, make her a marvelous classroom instructor; I learned a great deal about how history should be taught from watching her expert performances. I owe her a great deal for her astute criticism, unfailing encouragement, and unflagging faith in my ability to complete this project. She also has an exceptional knowledge of Austin's best restaurants, some of which I was privileged to visit with her. Sparkling conversation mingled with excellent food is one of the greatest joys of civilization; any dinner with Dr. Minault

was certain to have both in abundance. It was always delightful to be with her and I am deeply thankful for all the time she was able to spare for me.

I am grateful to Professor Toyin Falola for the insights he provided into African colonial history and for the education I received from him in the practical matters of preparing to teach an actual class. Dr. Robert Oppenheim was incredibly gracious about my Korean-language skills as well as being very helpful about the Korean history involved in this paper. Dr. Mark Metzler was very kind to accept a committee position and provided me with some most welcome encouragement about the progress of this paper. I am deeply indebted to all of these gentlemen and extend them my most sincere thanks.

Mrs. Bonnie Jacobs of the BYU Harold B. Lee Library deserves particular mention since she was kind enough to let a graduate student from another university leave BYU with a suitcase full of books knowing they were headed for South Korea. What is more, she cheerfully renewed them every two weeks for six months. Without her help this project would have been much more difficult and I am most grateful for her generosity. I also owe a debt of thanks to the librarians at Daewoo Shipbuilding and Marine Engineering in Aju-Dong and the librarians at Hyundai Heavy Industries in Ulsan. Ms. Sun-Kyung Park of Det Norske Veritas in Ulsan was particularly helpful in obtaining access to Hyundai's historical documents and I extend her my sincere thanks for her assistance. Mr. Dawoong Ham of Samsung Heavy Industries was kind enough to provide me with his history of Samsung Heavy Industries, an act of kindness for which I am very grateful.

Among my sources, Mr. Sung Hyuk Hwang deserves special thanks for the time he took to meet with me in Seoul and for allowing me to tape our conversation. Mr. Hwang was one of the most critically important men involved in the creation of the Hyundai Ulsan Shipyard and a major factor in Hyundai Shipbuilding's rise to world prominence. The factual insights he provided me were of great value. However, his personal kindness supersedes them. I am very thankful for his willingness to share his time and knowledge with me and hope that he will find this work a fair reflection of his accomplishments. He exemplifies the type of drive and dedication that brought Korea to the pinnacle of world shipbuilding.

Messrs. Robert Brown and Ernest Woodcock were kind enough to meet with me several times to discuss shipbuilding on the Clyde and share their opinions on the decline of British shipbuilding. Mr. Woodcock provided me with a sizable collection of personally acquired material about his time as a Clyde shipbuilder and was extraordinarily forthcoming in discussing his memories of the 1960s and 1970s. He passed away less than one week after our last discussion, leaving a tremendous gap both personally and professionally. I hope that he would think I presented his views accurately. I will always be most grateful for his personal kindness. Mr. Brown and Mr. Woodcock exemplify the phenomenon of British technology transfer which allowed so much of what had been learned in the United Kingdom to be transplanted to a new and welcoming venue in Korea. Without men such as them Korean shipbuilding would have had a much more difficult time becoming established.

I am grateful to Mr. Mike Brogan, Vice President of Technical Direction, Det Norske Veritas, for his insights into the workings of Scotland's Robb Caledon Shipyard as

well as his willingness to review parts of this paper. His assistance and advice was most welcome and much appreciated.

Messrs. Kevin Robertson, Hee-Jung Park and Ho Ook Lee of DNV were very generous with their time and advice, as were Mr. Ki-Dong Park and Mr. Jeong-Seok Choi of Samsung Heavy Industries. Messrs. Richard Sutherland and David Ross of Pacific Drilling were both encouraging and gladly willing to share their very limited time with me in discussing British engineering both past and present. I am most thankful for their insights and suggestions, as I am for those of Mr. Rolf Olsson and Mr. Per-Olav Rød of Golar Shipping. In Austin, my good friends Rob and Mary Anne Wilson provided me with critically important encouragement at crucial times in this process. I am deeply grateful for their inspired advice.

Professionally, I owe no greater thanks for the completion of this paper than I do to Ms. Marilyn Lehman and Ms. Mary Helen Quinn, the Graduate Program Administrators at the University of Texas at Austin. They went far above and beyond the call of duty in keeping a usually far distant student in the good graces of both the University and the History Department. Without their unfailing help this work would certainly never have been completed. My gratitude to them knows no bounds.

Last, but certainly not least, I owe my deepest personal thanks to my wife, Karen, and my daughter, Constance. For too many years work required far too much of my limited time and this paper took even more of it. Despite that, they were always loving and encouraging and their sacrifices made it possible for me to finally cross the finish line. In a life that has been full of blessings, they are the greatest of all.

While I am thankful to all those who helped me with this work, all errors, omissions or inaccuracies found herein are solely my responsibility.

SUNRISE IN THE EAST, SUNSET IN THE WEST:

How the Korean and British Shipbuilding Industries Changed Places in the 20th Century

Dan Patrick McWiggins, Ph.D.

The University of Texas at Austin, 2013

Supervisor: William Roger Louis

In 1965, Britain was less than a decade removed from world shipbuilding supremacy. They yet remained second only to Japan in the industry and boasted a long and proud heritage as one of the world's best shipbuilders. South Korea, by contrast, at that time had only the barest rudiments of a shipbuilding industry and was not even an inconsequential factor in world shipbuilding. What little shipbuilding was done in Korea in 1965 was primarily concerned with wooden vessels.

By 1982, the situation had completely reversed. South Korea was the world's second-leading shipbuilder and gaining rapidly on Japan, the industry leader. Meanwhile, Britain's presence in the industry had declined to near-irrelevance and was fading rapidly. This paper examines the technological, social, economic and governmental factors involved in that positional shift and explains how, in roughly two decades, Korea became a world shipbuilding power while the British shipbuilding industry virtually disappeared.

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INTRODUCTION

> Take it all in all, a ship of the line is the most honorable thing that man, as a gregarious animal, has ever produced. Into that he has put as much of his human patience, common sense, forethought, experimental philosophy, self-control, habits of order and obedience, thoroughly wrought handiwork, defiance of brute elements, careless courage, careful patriotism, and calm expectation of the judgment of God, as can be put into a space 300 feet long and 40 feet broad.[1]

In 1965, the year Sir Winston Churchill died, Britain was the world's second-largest shipbuilder, trailing only Japan. Shipbuilding had been one of the nation's staple industries since before the Industrial Revolution and despite the largely completed transformation from Empire to Commonwealth, it still contributed considerably to the British economy. The nation which boasted renowned seafarers like Drake, Hawkins, Cook and Nelson remained one of the world's major maritime nations. The Clyde River in Scotland had long been known for the number and quality of its shipbuilders. Across the Irish Sea in Northern Ireland, the sprawling Harland and Wolff Shipyard was the largest shipbuilder in the United Kingdom and would soon dominate the skyline of Belfast with its two huge gantry cranes, "Samson" and "Goliath."[2] Builders of such memorable ships as *R.M.S. Titanic*, Harland and Wolff that year began constructing what would be the largest drydock in Europe.[3]

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[1] John Ruskin, "The Shipbuilder," cited in Elijah Baker III, Introduction to Steel Shipbuilding, 2nd ed. (New York: McGraw-Hill, 1953) p. xviii.

[2] Booz, Allen and Hamilton BV, British Shipbuilding, 1972: A Report to the Department of Trade and Industry. (London: HMSO, 1973), pp. 93-95. Measured by both gross and deadweight tons delivered, as of 1971 Harland and Wolff in Belfast was the largest shipbuilder in the United Kingdom. Its average ship size delivered was well more than three times the average of United Kingdom shipbuilders as a whole, (49563 gross tons compared to 15303 gross tons) and close to three times that of its nearest United Kingdom competitor, Doxford and Sunderland (18436 gross tons). Harland and Wolff's eighteen available shipbuilding berths represented a much greater capacity than any other individual shipbuilder in the United Kingdom.

[3] Harland and Wolff Heavy Industries Co., Ltd. , Technical Specifications for Dry Dock and Gantry Cranes (Belfast: Harland and Wolff, 2010), pp. 1-9. The Main Dock at Harland and Wolff is 556 m (1824 ft.) long by 93 m (305 ft.) wide. "Samson" and "Goliath" can lift 840 tons each at 80 and 70 meter heights, respectively.

South Korea, a dozen years after the 1953 UN Armistice ending the Korean War, was a poor, agrarian country deeply dependent on American support to defend itself from its Communist neighbor, North Korea. It effectively possessed no shipbuilding industry worthy of the name. Only in 1966 did it first show up on the Lloyd's Register charts as a shipbuilder, and with less than a thousandth of the British output for the same year.

40 years later, in 2005, the situation was completely reversed. South Korea was the world's leading shipbuilding nation, with an output of 14,768,000 gross tons, while Britain in 2004 produced only 2,000 gross tons. South Korean shipyards in aggregate were launching at least one major vessel per day and its shipyards were the most technically advanced on the planet. Britain, trying to build two new aircraft carriers for its dramatically shrunken Royal Navy, was finding it hard to source much of the required equipment in the United Kingdom because its shipbuilding manufacturing base no longer existed. South Korea had the world's largest and most productive shipyard in Hyundai Heavy Industries (HHI) at Ulsan, Korea, and hot on HHI's heels were two other Korean competitors, Samsung Heavy Industries (SHI) and Daewoo Shipbuilding and Marine Engineering (DSME), located in Geoje, Korea. These three largest Korean shipbuilders, all belonging to Korean *chaebôl,* along with numerous smaller Korean yards, were expanding at breakneck pace and pouring huge sums of capital investment into their facilities.[4] Meanwhile, in Britain, shipbuilding on the

[4] Woo, Jung-en. Race to the Swift. (New York: Columbia University Press, 1991), p. 13. A *Chaebôl*, as defined by Jung-en Woo, is a "family-owned and managed group of companies that exercise monopolistic or oligopolistic control in product lines and industries." They are comparable to Japan's prewar *zaibatsu*. The Chinese ideographs depicting *chaebôl* in Korean are the same as those depicting *zaibatsu* in Japanese. In Chinese they mean "fortune cluster."

Clyde had atrophied to almost nothing[5] while Belfast's Harland and Wolff was down to below 150 workers and had been forced to "mothball,"[6] or decommission, one of its landmark gantry cranes due to lack of work.[7]

The obvious question is this: how could Britain, with its rich seafaring history and numerous technological and economic advantages, could so completely lose this industry? Conversely, how could poor, backward South Korea, with no seafaring history worthy of note since the 16th Century, have come to eclipse not only the British, but the world, in the building of ships? What did South Korea and Britain do differently that led to such diametrically opposed outcomes? What were the major factors in each country that influenced their respective shipbuilding industries to travel such divergent paths? A careful perusal of Table 1 below, which compares the major national shipbuilding industries by annual amounts of tonnage delivered, clearly shows that the most rapid part of this change took place in the decade from 1972 to 1982.[8] Because the factors influencing this shift were most clearly illuminated in that decade, this inquiry will primarily focus on that time period.

The structure of this paper will first recount the industrial requirements for modern (post-1960's) shipbuilding. Following that it will discuss the British history of shipbuilding from the end of the First World War until the 1980's, concentrating on the factors and decisions that most affected the industry. From that point the Korean

[5] The iconic pictures of Clyde shipyard Scott Lithgow's large gantry crane being leveled by demolition charges truly mark the end of the commercial shipbuilding era on the Clyde. Clyde shipbuilding since the late 1980's has been minimal; two small shipyards remain and what little work they have is commissioned almost exclusively by the Royal Navy.
[6] Cassidy, Martin. "Titanic Apology to City Shipyard." *BBC.co.uk*. British Broadcasting Company. 5 October 2007. Web. 28 January 2013. "Goliath" was "mothballed" in 2003 due to lack of work. It was restored to service in 2007 as part of a plan for building structures for offshore wind farms.
[7] Ruddock, Alan. "Where is the Bright New Future?" Management Today Mar. 2006: p. 44.
[8] Source: Lloyd's Register of Shipping's "*World Shipbuilding Statistics*" (now published by IHS Fairplay), 11 October 2010

shipbuilding industry and its actions since 1972 will be examined and contrasted with the British experience. The final section will be the conclusions to be drawn from that comparison.

TABLE 1: WORLD ANNUAL SHIPBUILDING TONNAGE ('000 GROSS TONS)

Year	Far East					Americas			Western Europe											Eastern Europe			S/T Major Countries	Other Countries	World Total	Year
	Japan	Korea	China	Taiwan	S/T	Brazil	U.S.A.	S/T	Denmark	Finland	France	Germany	Italy	Netherlands	Norway	Spain	Sweden	U.K.	S/T	Croatia	Poland	S/T				
1964	3,764	na	na	na	3,764	na	250	250	278	117	530	827	462	276	369	236	1,034	808	4,937	178	238	416	9,367	357	9,724	1964
1965	4,886	na	na	na	4,886	na	218	218	209	164	485	1,035	399	148	460	225	1,266	1,282	5,673	230	317	547	11,324	439	11,763	1965
1966	6,495	10	na	na	6,505	na	192	192	472	130	441	1,411	530	324	442	374	1,130	1,074	6,328	332	354	686	13,711	394	14,105	1966
1967	7,217	6	na	na	7,223	na	209	209	425	169	420	1,312	496	292	530	375	1,361	1,188	6,568	259	382	641	14,641	516	15,157	1967
1968	8,349	3	na	na	8,352	na	367	367	518	175	630	1,505	499	265	610	455	1,097	1,047	6,801	326	418	744	16,264	581	16,845	1968
1969	9,168	7	na	na	9,175	na	464	464	591	185	691	2,095	364	486	618	637	1,263	828	7,758	295	426	721	18,118	621	18,739	1969
1970	10,100	2	na	90	10,192	na	375	375	518	241	859	1,643	546	632	702	649	1,539	1,367	8,696	385	414	799	20,062	918	20,980	1970
1971	11,132	16	na	94	11,242	136	490	626	728	199	1,086	2,261	872	572	884	830	1,864	1,233	10,529	397	471	868	23,265	1,123	24,388	1971
1972	12,857	15	na	144	13,016	226	482	708	952	214	1,030	1,713	902	750	825	1,083	2,028	1,197	10,694	671	522	1,193	25,611	1,138	26,749	1972
1973	14,751	14	na	132	14,897	168	964	1,132	1,004	186	1,170	2,233	837	852	984	1,319	2,290	1,067	11,942	446	584	1,030	29,001	1,408	30,409	1973
1974	16,894	313	na	153	17,360	164	733	897	1,076	192	1,046	2,472	953	942	964	1,561	2,181	1,198	12,585	720	509	1,229	32,071	1,470	33,541	1974
1975	16,991	410	na	88	17,489	295	476	771	969	267	1,150	2,848	792	1,028	1,052	1,593	2,188	1,170	13,057	638	735	1,373	32,690	1,513	34,203	1975
1976	15,868	814	na	83	16,765	407	815	1,222	1,034	249	1,673	2,227	715	634	758	1,320	2,515	1,500	12,625	597	565	1,162	31,774	2,148	33,922	1976
1977	11,708	562	110	296	12,676	380	1,012	1,392	709	361	1,107	1,973	778	240	567	1,813	2,311	1,020	10,879	421	478	899	25,846	1,686	27,532	1977
1978	6,307	604	31	406	7,348	442	1,033	1,475	346	357	440	1,253	339	315	325	821	1,407	1,133	6,736	293	702	995	16,554	1,640	18,194	1978
1979	4,697	495	na	194	5,386	665	1,352	2,017	263	289	720	818	231	277	364	630	460	691	4,743	225	462	687	12,833	1,456	14,289	1979
1980	6,094	522	na	240	6,856	729	555	1,284	208	200	283	722	248	122	208	395	348	427	3,161	149	362	511	11,812	1,289	13,101	1980
1981	8,400	929	30	311	9,670	716	360	1,076	352	217	501	1,060	271	173	310	779	453	212	4,328	223	283	506	15,580	1,352	16,932	1981
1982	8,163	1,401	135	459	10,158	500	215	715	451	271	264	958	176	212	347	557	287	434	3,957	311	298	609	15,439	1,381	16,820	1982
1983	6,670	1,539	185	345	8,739	259	380	639	444	260	307	1,134	255	232	182	500	328	496	4,138	304	346	650	14,166	1,745	15,911	1983
1984	9,711	1,473	329	822	12,335	271	83	354	474	340	326	882	273	154	111	354	303	444	3,661	271	302	573	16,923	1,411	18,334	1984
1985	9,503	2,620	166	278	12,567	581	179	760	458	213	199	920	88	180	122	550	201	171	3,102	259	361	620	17,049	1,108	18,157	1985
1986	8,178	3,642	258	383	12,461	430	223	653	361	231	158	876	34	151	84	167	0	98	2,160	233	375	608	15,882	963	16,845	1986

INDUSTRIAL REQUIREMENTS FOR MODERN SHIPBUILDING

To provide a basis for properly understanding the issue, the first requirement is to consider the practical reality of constructing a modern commercial ship. Much changed from John Ruskin's day, many modern vessels constructed since the 1970's are huge structures more than 300 meters long and 60+ meters wide. Ships are generally constructed as a box girder, meaning it is a predominantly hollow, mostly rectangular steel fabrication externally covered with steel plating. This plating and its attached strengthening (often referred to as "stiffeners") is supported by internal structural support beams, webs and brackets. Those internal structural supports have to be solid enough to enable the external plating and its support members to withstand, in the worst cases, 30+ meter (100+ foot) waves and 100+ knot (115 mile per hour) winds. However, they must also leave sufficient interior space to carry the cargo that pays for the vessel's construction and operating costs.

Every ship design represents a long series of engineering tradeoffs. Many things are desirable on a ship which simply cannot be justified by the proposed return on investment. Consequently, ship designers are always seeking to find the optimum choice between performance and cost. One of the factors most carefully considered in initial vessel design is the eternal maritime dilemma concerning weight and speed. All ship owners and shipbuilders know every additional ton of steel strengthening represents both an initial construction cost and a lifelong increase in operating costs, particularly for fuel. Fuel costs for ship owners are constantly increasing due both to internationally mandated higher product purity requirements and the ever-escalating

price of crude oil.[9] Since it can easily cost more than one million dollars to "bunker"[10] a large vessel, this is a major operating expense. Finding ways to reduce operational costs is a ceaseless quest in which owners are always diligently engaged. Cutting fuel costs to the absolute minimum is a goal all shipowners have in common and hold dear to their hearts. The age of sail may be passed but the desire to have the fuel costs of those days still lingers on in the boardrooms of shipping companies!

Meanwhile, inside that box girder are several thousand miles of wiring and several hundred miles of piping. In addition to the normal systems required to operate, propel and maneuver the vessel, much of this infrastructure facilitates electronic monitoring equipment designed to do many tasks formerly done by larger human crews.[11] This places a greatly increased emphasis on equipment reliability as the safety factor/repair capability provided by a higher manning complement no longer exists. Now operated by what would in the past have been considered "skeleton crews," modern ships are incredibly complex and expensive structures expected to consistently work properly with a minimum of crew-provided post-delivery maintenance. Consequently, much more responsibility devolves on the newbuilding shipyard to provide a safer and more consistently seaworthy vessel.

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[9] The International Maritime Organization (IMO) is a part of the United Nations and is responsible for promulgating rules governing international shipping. With regard to marine fuels, the predominant usage has been of residual fuels. These fuels are primarily composed of the remaining parts of crude oil after higher-value products, such as gasoline and kerosene, have been distilled away. They commonly have varying, but relatively high, concentrations of toxic chemicals such as hydrogen sulfide, lead, nickel, sulfur and vanadium. Due to concerns about the impact of shipping on international air pollution, in the last thirty years more and more sections of the world's oceans have been designated as "special areas" where only fuels with very low sulfur content can be used. These fuels, due to the higher purity required, have considerably greater refining costs. These, of course, are passed on to the customer. It should also be noted that due to pollution regulations and the serious potential for damage to vessel engines from mixing incompatible elements, most residual fuels cannot now be combined. Imagine if you had to have several fuel tanks in your automobile because you could not mix fuel bought from one station with fuel bought from another!

[10] To "bunker" a vessel means to load it with fuel.

[11] In the 1970's it was common to find vessels with crews of forty or more seafarers. In the 21st Century crews are now down to 20 or less and the technological capability exists to have ships that need no onboard personnel at all.

CRITICAL LOCATION AND FACILITY PREREQUISITES

A modern shipyard is "an assembly plant geared to the assembling of structural steel units…with an important subsidiary manufacturing role cutting, shaping and otherwise fabricating sheet and plate steel and pipe in conformity with the specifications of ship design."[12] Starting from this definition, it becomes clear that to support a modern world-class shipbuilding industry, a number of physical and human factors are prerequisites.

First, given the huge dimensions of modern vessels, shipyards must have access to deep-water harbors. Modern vessels 300-plus meters in length will often have fully-laden drafts approaching thirty meters. Harbors where vessels of this size can be launched without having to resort to expensive and repeated dredging operations are a tremendous advantage to a shipbuilding nation. Moreover, it helps greatly if these harbors are located in areas with relatively mild tidal variances since shipyards located on tidal rivers with major level fluctuations experience launching availability limitations and constraints on the movement of heavy items by floating cranes.[13]

Second, adjacent coastal land must be available at reasonable prices due to the large amounts of land needed for the construction of large modern ships. The construction process of a modern ship bears a clear resemblance to the assembly of a jigsaw puzzle.

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[12] Daniel Todd, The World Shipbuilding Industry. (New York: St. Martin's Press, 1985), p. 28. Todd presents a clear argument as to how modern shipyards producing ships on a "flow-line production principle" must, for maximum efficiency, be laid out to provide "straight-line, minimum-distance hauls between the various stages of production."

[13] Sung-Leep Jung, DSME Okpo Shipyard: Three Decades of Trust and Passion, 1973-2003 (Okpo: Samsung Printing, 2004), p. 167. According to Jung, the Korean Government chose the location for the Okpo Shipyard on Geoje Island based on it meeting five major criteria: water depth of at least 15 meters, less than 1 meter of tidal rise/fall, generally moderate wind conditions, ability to dedicate at least 1,652,900 square meters to shipyard usage, and proximity to a large port.

Modern vessels are assembled in "blocks," which are composed of various smaller sub-structures. These "blocks" correspond to individual puzzle pieces. It is common for a "block" to exceed twenty-five meters in length, and fifteen meters in height and breadth, and a modern ship may well have in excess of four hundred of these "blocks." The "blocks" are then welded together to make "mega-blocks." "Mega-blocks" can include six or more "blocks" in their construction.

These "mega-blocks" are then erected, or placed together, in a drydock, which is normally a trench cut in the ground below sea level and closed off by a movable "gate" at its seaside end. When the drydock "gate" is open, the drydock is full of water to the level of the external body of water. When the "gate" is closed, thus isolating the drydock's internal area from the external body of water, the drydock can be pumped out and provide a dry area for construction/assembly of vessels.[14] When construction is completed, the drydock can be flooded again and the vessel gently floated out of the drydock. This is a major technological advance over inclined construction berths since the launched vessel never need be exposed to the danger of mishandling and collision, a not infrequent occurrence during launches from inclined berths.[15] A drydock will usually have concrete walls and a concrete floor with an elaborate and robust drainage infrastructure.[16] Some large dry-docks are longer than 500 meters in length and 130

[14] The drydock "gate" is actually a caisson which can be ballasted and deballasted. When it is desired to close the "gate," while the drydock is flooded the caisson is moved into place by tugboats and ballasted, thus causing it to sink into place and isolate the drydock. The drydock can then be pumped dry. When it is desired to flood the drydock, valves in the drydock are opened and water is allowed to enter until levels inside and outside are equalized. The "gate" is then deballasted, which causes it to have additional buoyancy. It will then float up out of the "closed" position and can then be moved to an unobtrusive storage position by tugboats.

[15] In addition to making safer launches possible, drydocks also considerably eased many construction difficulties as a drydock-built vessel was built on a level base line. Therefore it was not necessary for designers and shipyard assembly workers to take into account the angle presented by the ship's position on an inclined launching slipway.

[16] There are also floating drydocks, made of steel, which are ballasted to sink them deeper in the water thus permitting the flotation and launching of vessels constructed within.

meters in width.[17] These are spanned by gantry cranes often rising 90 meters or more above the drydock and whose main support beam is often longer than two football fields.

Fabrication and storage areas for these "blocks" and "mega-blocks" are required[18], as are specialist shops for sandblasting, coating and painting them.[19] Other specialist shops required are for rudder fabrication and assembly, propeller mounting, piping fabrication, tank assembly and cargo containment membrane fabrication. Extensive machine shop facilities for metalworking operations are an absolute necessity.[20] Covered and climate-controlled storage for expensive marine equipment supplied by external vendors is mandatory, in addition to outside storage for vast amounts of steel plating and piping. Almost every conceivable type of electric cabling must also be stored on site, often in huge amounts, and it must be readily available. See Table 2 for a general listing of needed equipment.

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[17] [17]Jung, DSME Okpo Shipyard, 171. The Okpo Shipyard's No. 1 Dock is 530 meters long, 131 meters wide and 14.5 meters deep. DSME claims it is the world's largest drydock and has a maximum construction capacity of 1 million deadweight tons. The associated "Goliath" gantry crane is 91 meters high, 206 meters long, and can handle 900 tons.

[18] In a large shipyard with a high volume of steel throughput, already constructed "blocks" need to be stored someplace while the remaining components of the "mega-block" are fabricated. Depending on the size, order book and fabrication schedule of the yard, the storage area required can be as much as several hundred acres.

[19] Given that the marine environment of high UV sunlight, salt air and salt water is so corrosive, the coating systems on a vessel are of extreme importance. As a general rule, more than 10 percent of the cost of a newly built vessel is spent on painting and coating materials. Coating technology is a shipbuilding sub-discipline in its own right, whose practitioners are fond of reminding customers that "rust never sleeps" and that their choices are either, "paint now or replace with new steel later."

[20] While there are a great many machining requirements for large vessels, the most commonly impressive is the fabrication of propeller shafts. It is quite common to see propeller shafts which are in excess of ten meters long. In most cases these shafts are machined from forged billets of chrome-moly steel. The process begins with a battered, blackened, roughly rectangular forged steel billet, with dimensional tolerances measured in inches/centimeters, entering a machine shop. It reemerges as a gleaming, precisely and intricately machined cylindrical shaft with dimensional tolerances measured in hundreds of a millimeter. Watching this transformation happen to such a huge piece of steel is to see the true beauty of industrial manufacturing.

Table 2: MODERN SHIPYARD EQUIPMENT REQUIREMENTS[21]

Function	Equipment Needed
Steel Receipt and Storage:	Ship/barge, railway or truck transshipment facilities; cranes or conveyors; extensive storage area
Blast-cleaning and Pickling	Covered assembly area; blast-cleaning/pickling vat; rail cars; tractors, trucks, conveyors, cranes
Steel Marking	Covered assembly area; templates, numerically controlled marking equipment, conveyors, cranes
Steel Cutting	Covered assembly area; numerically controlled burning equipment and skids; cranes
Rivet Punching	Multiple punches, drills, conveyors, cranes
Cold Forming	Covered assembly area; complete machine shop capability. Rolls, presses, cranes, templates, lathes, milling machines, shapers, drilling machines, precision measuring equipment, non-destructive testing capabilities, including radiation and ultrasound.
Hot Forming	Furnaces, presses, forms and jigs, cranes
Intermediate Storage (I)	Railway facilities if possible; conveyors, storage and holding brackets, trucks, forklifts, movable cranes, large storage area
Precut Parts Assembly	Jigs, panel assembly line welding equipment, joining brackets, burning equipment, gouging equipment, preheating equipment and temperature-recording devices, non-destructive testing capabilities, including radiation and ultrasound; cranes
Intermediate Storage (II)	Railway facilities if possible; conveyors, storage and holding brackets,
Erection on ways/in drydocks/assembly areas	Large tower or gantry cranes; keel blocks; large JLG/cherry pickers; forklifts; rudder stock carriages; preheating equipment; welding, burning and gouging equipment; laser measuring equipment/transits; non-destructive testing capabilities, including radiation and ultrasound;
Outfitting	Welding, burning and gouging equipment; quay or jetty cranes.

Once these material/logistical needs are met, there remains the necessity of providing for the most important factor: the human component. A large shipyard is much like a small city. It will have administrators, designers, engineers, production personnel, quality management personnel, maintenance personnel, cleaning personnel, catering

[21] D.M. Mack-Forlist and A. Newman, The Conversion of Shipbuilding from Military to Civilian Markets (Praeger, New York, 1970), pp. 38-39. This chart is adapted to shipyard equipment required of a major modern shipyard ca. 2013.

services, fire and security departments, and medical personnel. They often have branches of local banks inside as well as a post office. The offices, canteens, medical facilities, testing centers, and other structures needed to house the workforce must be of commensurate size. Given that some Korean shipyards employ more than 30,000 personnel on site, the required support infrastructure represents a major expense.

As a general rule, the more of these facilities which can be located inside the shipyard itself, the more useful they are, if only due to the savings in travel costs permitted by close proximity. If land cost is exorbitant, the industry will be constrained in growth simply because satellite construction facilities located distant from the main shipyard add an additional transport cost which the overall profit margin may not support. It must always be remembered that shipbuilding is a cyclical business, and generally not one which yields a great profit margin compared to the vast amounts of capital required to construct the necessary facilities. This fact concerning shipyard profit margins plays a large part in the relative trajectories of the South Korean and British shipbuilding industries, as will be shown later.

Third, but most important, there must be a plentiful, skilled and relatively willing workforce available. Despite the large amount of machinery used in modern shipbuilding, it still remains a very labor-intensive industry. Fabrication of large, curved metal parts such as bows, sterns and pontoons is a very complex business. While computer-aided design has increased productivity considerably, the construction, fitting, assembly and welding of such items is still primarily done by hand and requires years of experience to do properly. Hand welding and pipefitting, while far diminished from the requirements of even thirty years ago, still requires

many experienced and competent specialist workers. Even those parts which are generally square and can be welded by machine must have welders who know how to set and operate the welding machines within the proper parameters.[22] Painters, insulators, cleaners, tile-setters, joiners and carpenters are all vitally important in the construction of a modern vessel. Given the huge amount of electrical equipment and instrumentation aboard a modern vessel, electrical engineers, electronics technicians, electricians and cable layers are in greater demand than ever before. Workers performing any of these jobs in the modern era must be capable of following written directions properly and understanding the relevance of their job to the overall construction of at least their segment of the vessel.[23]

The supervisory force must be even better educated and skilled at their tasks because they not only have to know how to perform the tasks of their subordinates, they must also know the design requirements of the system. This means they must be able to read and properly interpret engineering drawings, recognize when work is not properly done, know how to function within the shipyard's quality system to redress

[22] For a proper weld to be made, certain critical variables must be correct prior to weld initiation. These variables include metal compatibility, voltage type, voltage magnitude, amperage, type of electrode, travel speed of the electrode, gas or flux used, thickness of the metal, overall heat input, preheating, postheating and stress relieving, among others. Failure to meet any of the required variable values can result in brittle, cracked or incomplete welds, potentially endangering the vessel. Such welding errors resulted in the loss of numerous American "Liberty" and "Victory" ships constructed during the crash shipbuilding effort for United States merchant shipping during World War II; on occasion vessels simply broke into two pieces from encountering normal levels of wave motion.

[23] Governments have not always understood the importance of this requirement. An egregious example is the effort by the United States government in the 1970's to reinvent the former Brooklyn Naval Yard, in Brooklyn, New York, as a commercial shipyard. The intent was twofold: first, to take under-educated inner-city minority youths and train them to be shipbuilders and ship fitters, and second, to rehabilitate a crime-ridden section of New York City. The project was an abject failure, which collapsed as soon as the U.S. Government stopped pumping huge amounts of money into it. The U.S. Government loss was eventually well in excess of $500 million, a vast sum at the time. The author had the misfortune to sail on one of the vessels that was constructed under this scheme. A VLCC (Very Large Crude [oil] Carrier), it was undoubtedly the most poorly built vessel I ever sailed on in a thirty-year seagoing career, albeit one of the most expensive in initial shipbuilding cost.

quality issues, keep close track of their area of responsibility[24], and maintain a sometimes impossibly tight schedule.[25] Moreover, they must understand their unit's role in the processing hierarchy of flow management in order to properly assign priority to the tasks at hand. In South Korea, there is the additional requirement of high-level technical proficiency in English, the international language of shipping and ship construction.[26]

To produce employees capable of completing such challenging tasks properly, there must already exist a decent education system capable of training them to the standards necessary. Also, given that shipbuilding is often a dirty, difficult and dangerous job, the workforce must be sufficiently motivated to want to accept such labor for the remuneration on offer. In both Korea and Britain, this last point would prove to be a critical determinant of their eventual success or failure.

Fourth, and arguably most critical, there must be government support at a high level. All modern national governments have the power of life or death over any business entity within their borders. National economic planning can, and very often does, determine the success or failure of industries within an overall national economy. For

[24] The author once had a Korean shipyard quality control manager bemoan the fact that he had to cancel an inspection due to the fact that he had "lost a block." Unable to resist the temptation, I feigned astonishment and asked, "How could you lose this block? It is twenty meters long, fifteen meters wide and fifteen meters high. It weighs more than one hundred tons!" In reality, given the size of the shipyard and the numbers of equivalently huge blocks for which each quality manager was responsible, it was surprising such "losses" did not happen far more often.

[25] Korean dedication to schedule adherence is legendary and is a major reason they are the world's most productive shipbuilders. To paraphrase Kipling, Korean shipyard managers have "faith in Schedule most men withhold from God."

[26] Without certification from a recognized classification society that a vessel has been built according to its rules, it is almost impossible for a vessel to obtain insurance. The world's leading ship classification societies are Lloyd's Register (British), American Bureau of Shipping (American), DNV-GL (Norwegian/German), Nippon Kaiji Kyokai (Japanese) and Bureau Veritas (French). These classification societies, which operate worldwide, effectively create the rules under which all modern ships are built. Shipyard supervisory personnel must deal with classification society personnel on a daily basis about intricate matters of serious technical import. For all parties involved, fluency in English is a mandatory prerequisite for employment.

a favored industry, government can provide a myriad of benefits: beneficial tax policy, low or no-interest loans, outright grants of capital, access to hard currencies to permit acquisition of needed imports or new technology, lax or non-enforcement of environmental regulation, and suppression of labor unrest.

Fifth, there is a relatively amorphous yet vitally important factor involved; the idea of economic nationalism. Walt W. Rostow described this very well in his book, The Stages of Economic Growth: A Non-Communist Manifesto. Every modern industrialized country has obtained the capital to become industrialized by taking it, generally through taxation, from other productive segments of the national society.[27] These resources have then been deliberately redirected into industrialization. To a greater or lesser degree, this requires the consent of the governed to such extraction of capital because they must be willing to submit to this rather than rise up in rebellion against onerous taxation. Most industrializing governments have presented this to the population as "strengthening the country" and necessary for national advance, or as in the case of South Korea, simple survival. President Chung-Hee Park, under whose administration Korea actually began its economic "takeoff," was fond of justifying his push for industrialization by using the phrase *pukuk kangbyeong* (부국 강병) which means "rich country, strong army."[28]

Obviously, the stronger the nationalistic sentiment in a country, the more successful such an appeal will be. Nationalist sentiment in Japan in the 19th century made the Japanese people willing to reallocate the profits of the silk industry to a Meiji

[27] Walt W. Rostow, The Stages of Economic Growth: A Non-Communist Manifesto (Cambridge: Cambridge University Press, 1960), pp. 5-7.
[28] Chung-In Moon and Byung-Joon Jun, "Modernization Strategy: Ideas and Influences," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 116.

government desperately anxious to keep Japan free from European colonial rule. South Koreans in the 1960s and 1970's remembered the hard-won stalemate of the Korean War barely a decade past and recognized a bitterly hostile North Korea as a clear and present danger to national survival. Korea and Japan share a long and frequently interwoven history and culture.[29] That South Korea's response to the North Korean threat was closely akin to the Japanese response to external danger in the 19th Century is not surprising.

All of the aforementioned five areas played important parts in both Britain and Korea relative to their shipbuilding industries. They will be closely examined to determine what effect these factors had on their national shipbuilding industries and how each nation differed from the other in their reinforcement, or lack of, these critical areas.

[29] There are many cultural similarities between the two countries, which is a source of some embarrassment to nationalists in both places, particularly in Korea. One must be careful about placing too much weight on such similarities. However, it is obvious that the Koreans of what is known as the "Japanese Generation," (i.e., the Koreans raised between 1910 and 1945), had a great deal of respect, even if grudgingly yielded, for the Japanese ability to plan, organize and carry out tasks of major complexity and difficulty. Even though the Japanese were acting almost completely for their own benefit, the opportunity Koreans had to witness Japanese practice in these areas paid great dividends in postwar South Korea.

MAJOR TECHNICAL DIFFERENCES BETWEEN KOREAN AND BRITISH SHIPBUILDING

SHIPYARD LOCATION AND EXPANSION IN BRITAIN AND KOREA

British shipbuilding in the post-World War II era concentrated on Harland and Wolff in Northern Ireland, Scotland's Clyde River, and England's Tyne, Tees, Wear and Mersey Rivers.[30] These areas, usually initially established in the 19th Century as shipbuilding venues, possessed sufficient water depth for the size of the vessels being constructed at that time. British shipbuilders of a later era, trying to work within existing yards originated when vessel sizes were considerably smaller and vessel building programs both smaller and less linear, found themselves facing vexingly intransigent physical constraints that the newer South Korean yards did not. As vessel sizes expanded dramatically in the 1960's, it became increasingly apparent that most British yards faced severe production problems stemming from insufficient water depth.[31] Moreover, with the exception of the Harland and Wolff shipyard at Queen's Island, Belfast, they were all located on relatively narrow, sinuous rivers, another fact which would prove increasingly problematic as ships grew larger and longer.[32] Even at Harland and Wolff, the least difficult venue for delivery of large vessels even prior to the construction of the massive new drydock, it still required skillful use of

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[30] N.S. Ross, "Ship Repairing in Great Britain," Journal of the Royal Statistical Society, Series A (General), Vol. 115, No. 4 (1952), pp. 524.

[31] K. Warren, "The Location of British Heavy Industry: Problems and Policies." The Geographical Journal, Vol. 139, No. 1 (Feb. 1973), pp. 78-81.

[32] Most of the major shipyards on the slender Clyde had launching berths sited at an acute angle to the downstream flow so as to provide vitally necessary additional launching space. During Britain's period as the world's primary shipbuilder most ships were built on inclined building berths. "Sliding down the ways" refers to a ship's path as it glides down the greased inclined berth into the water. Given that the vessel itself is a massive object and is picking up speed as it moves downhill, it acquires a considerable amount of kinetic energy during the launch. In a narrow waterway the task of taking a launched vessel in tow and controlling its movement before it runs aground on the opposite bank is no small feat. The skill of tugboat operators on Britain's shipbuilding rivers was critically important to British shipbuilding's success. As a salient example, a picture of the *Queen Elizabeth II* being launched at John Brown's Clydebank works shows that only the additional width provided by the mouth of the River Cart as it joins the Clyde permits the launching of the vessel. The ship itself is quite obviously longer than the width of the Clyde at that point. Robert Jeffrey and Ian Watson, The Herald Book of the Clyde: Glasgow's River from Source to Sea. (Edinburgh: B &W Publishing, 1998), p. 83.

ballasting, drag chains and tugboats to make possible launching vessels in excess of 193,000 deadweight tons.

Korea's three major shipbuilding facilities are located on deep-water harbors in sheltered areas that open fairly directly onto the ocean. Mipo Bay in Ulsan, where Hyundai Heavy Industries (HHI) is located, lies right on the peninsula's east coast, while Samsung Heavy Industries (SHI) and Daewoo Shipbuilding and Marine Engineering (DSME) are located on the island of Geoje-do. In both cases, the necessary physical deep-water harbor requirements for large-scale shipbuilding are available.[33] Moreover, the newly constructed South Korean shipyards never installed the inclined building berths used in almost all the older, technologically obsolescent British shipyards.[34] Consequently, the width of the available launching area never posed a problem. From the earliest planning stages of Korea's first major modern shipyard, HHI's 1972-built Mipo Bay facility, a large dry dock was arguably the most important part of the initial design.[35] It is relevant to note here that when Britain finally, in 1965/66, decided to formally address the problems of its declining shipbuilding industry at Parliamentary level, the British Department of Trade commissioned a Shipbuilding Inquiry Committee to investigate what changes might be necessary to "make the shipbuilding industry competitive in world markets." The

[33] Daewoo Shipbuilding and Marine Engineering has a quay depth of 19 meters at its "H" quay and dredging, to date, has not been necessary to maintain this depth. This information was recorded by author from Daewoo data submissions during preparations for conduction of inclining experiment of Mobile Offshore Drilling Unit "Bicentenario" in February, 2010.

[34] Harland and Wolff in Belfast was significantly different than other British shipyards in that it established a modernization plan which did include the construction of a large drydock capable of accommodating a 1 million deadweight ton vessel.

[35] The South Koreans entered shipbuilding at the tail end of the VLCC/ULCC (Very Large Crude Carrier/Ultra Large Crude Carrier) era and always intended to build large vessels. Inclined launching berths were, for them, a relic of shipbuilding's past in which they had only academic interest. The self-produced histories of Korea's top three shipbuilders, Hyundai Heavy Industries, Daewoo Shipbuilding and Marine Engineering, and Samsung Heavy Industries, all make quite clear the fact that their shipyards were designed to facilitate final construction in a large drydock equipped with powerful crane capacity. From the first stages of planning the dry dock was always intended to be the end point of the flow-line production system.

Committee's findings, commonly referred to as the Geddes Report after its chairman, Mr. R.M. Geddes, note that "in recent years some overseas yards have developed the practice of building ships in a dry dock. This method is particularly appropriate to building very large ships but ships of any size can be built in a dry dock."[36] At the time the Geddes Report was issued, the Japanese had been very successfully building increasingly larger commercial ships in this fashion since 1952. However, the Report was somewhat skeptical about the necessity for British shipyards to invest in facilities capable of building truly huge vessels such as Very Large Crude (Oil) Carriers (VLCC).[37]

As for the availability of adjacent coastal land, the situation differs considerably between Korea and Britain in the major shipbuilding areas. Those sites in Britain were initially begun on riverside locations in relatively flat, open areas. This stands in clear contrast to the major shipyards on the eastern side of the mountainous Korean peninsula. There, the general topography is composed of rocky coastlines with small amounts of flat land between the ocean and the foothills of the mountains. This topographical difference, which in an earlier era might have posed near-insuperable difficulties, has actually posed little problem for modern Korean shipbuilders as they have not hesitated to use explosives and mechanical means to remove whole mountain spurs to expand their facilities. As an example, in 2009 Daewoo Shipbuilding and Marine Engineering's Okpo Shipyard simply tore down and dismantled a

[36] Parliamentary Papers, Shipbuilding Inquiry Committee 1965-1966 Report, (Geddes Report), HMSO (London, 1966), Cmnd. 2937, p. 17.

[37] In this skepticism they were more correct than they could possibly have known at the time. They were writing just prior to the inception of the Very Large Crude Carrier/Ultra Large Crude Carrier boom which started with the 1967 closure of the Suez Canal. That would have appeared to show them mistaken in their assessment. However, the following 1973 "Oil Shock," when OPEC raised crude oil prices by 400%, caused a near-collapse in the tanker industry as Western economies drastically cut their energy usage. With price-imposed oil conservation biting deeply into energy transportation requirements, VLCC/ULCC tonnage rapidly fell out of favor in the world tanker shipping markets.

basalt/granite mountain spur 100 meters in height over the course of the year. They then used the removed stone to construct the access aprons and foundations for DSME's new "H" Quay.

Despite initially being an advantage for 19th and early 20th Century British shipbuilders, the relative accessibility and habitability of the areas around the major British shipbuilding yards has proved to be the basis of a serious restriction in the post-World War II era. In addition to the difficulty posed by being sited on such slender, winding waterways as the Clyde, Tyne, Tees and Wear rivers, British shipyards were usually more than a century older than their newly established South Korean rivals. Towns and infrastructure had grown up around them and hemmed them in.[38] Even had they wished to expand and been able to obtain the necessary governmental permission, something by no means guaranteed, there would have been little or no nearby uninhabited land for doing so. Expansion would have required the dispossession of large numbers of tenants in possession who would undoubtedly have been very unhappy with such actions and whose MPs would certainly have raised difficult questions in Parliament. Even with full government assistance and approval, concessions which would almost certainly not have been forthcoming in a democratic Britain not at war, such actions would undoubtedly have been ruinously expensive with tenants requiring fair compensation for their relatively expensive urban property. In the modern shipbuilding business, with its emphasis on straight-line, minimum-

[38] Warren, "Location," pp. 80-81. He notes that Britain, as of 1973, had not built an important new shipyard in almost fifty years. Discussing this matter with Mr. Ernest Woodcock, a Glaswegian who had served an apprenticeship on the Clyde and worked in Lithgow's, he noted that "the yards were caught between the river and the road. There was no place to go." What he referred to was that the shipyards on both sides of the Clyde were prevented from expanding by the roads which ran parallel to the Clyde on both banks. What small amount of expansion might have been possible would have had to be done parallel to the river in that narrow, constricted band of property. Senior Electrical Supervisor Ernest Woodcock, personal interview, 22 January 2013.

distance transport of components, "the availability of site space goes right to the heart of shipbuilding competitiveness."[39] Most British shipyards just didn't have sufficient existing space for modern, optimized large-vessel construction and had no economically feasible way of obtaining it. As Kenneth Warren rather sadly stated in 1973, "Britain, as the pioneer industrial nation, continues to pay a high price for past glories."[40]

The Korean shipbuilders generally found no such problem, as they were building on "greenfield" sites to modern shipyard designs. They also had the full weight of government support behind them, of which more will be mentioned later. South Korea has approximately two-thirds of the population of Great Britain concentrated in much less space, with the country being slightly larger than the American state of Indiana.[41] Korean population density is particularly heavy in the greater Seoul area, as roughly one-half of the total population of South Korea lives within 50 kilometers of Seoul. By comparison, with the exception of Busan, the peninsula's eastern coast was in 1972 quite empty. Geoje Island, where SHI and DSME are now located, had little but small and depopulating fishing villages on it when these shipyards were begun. Largely mountainous and with relatively little arable land for farming, Geoje's lack of population made it easy to initially acquire land quite cheaply near the island's natural deepwater harbors and to expand as business grew.[42]

[39] Todd, "Shipbuilding," pp. 30-31.
[40] Warren, "Location," p. 83.
[41] Central Intelligence Agency World Fact Book, South Korea, "Geography," 2012. Web.
[42] Mr. Sung Hyuk Hwang, former Senior Vice President, Hyundai Heavy Industries, personal interview, 24 September 2009. Mr. Hwang noted that the major reason locations on the southeast coast were chosen for shipyard siting was because "land was cheap and easily attainable."

Neither Mipo Bay nor Geoje had even the rudiments of the population base necessary to man a large modern shipyard. However, both were roughly equidistant (approximately fifty kilometers) from South Korea's second-largest city, Busan, and could immediately draw on that large metropolis for manpower.[43] HHI's Mipo Bay shipyard was near Ulsan, a city only slightly north of Busan and easily accessed by road from there. Such close proximity greatly facilitated personnel access. Material access proved a different matter, with the roads connecting Busan and Ulsan soon requiring considerable improvement and upgrading as they were not initially constructed to withstand either the heavy weight or the massive volume of tractor-trailer traffic that quickly began traveling on them.[44]

Geoje, as an island, posed a more difficult problem. Prior to the 1970's there existed only one small bridge for access to the mainland, and it was on the western side of the island. Both SHI and DSME are on the northern side of the island and roughly south-southwest from Busan across Masan Bay. Driving from Busan to the Geoje shipyards entailed almost completely circumnavigating Masan Bay, a trip which required a minimum of 3.5 hours and which Korea's frequent traffic jams often made longer. In the 1970's the Korean Government built a second, larger bridge parallel to the first Geoje bridge. A scheduled daily multiport passenger ferry service was also started to provide access for workers coming from Busan and points north.

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[43] Many workers in all three major shipyards came from Busan. However, one of the major milestones of Korean industrialization was the construction, in the 1960's, of the Seoul-Busan National Highway. This highway, known as National Route 1 or the Gyeongbu Expressway, tied four of Korea's five major cities together and greatly facilitated business expansion. It also made it reasonable for Seoul-based workers to accept employment at the three major shipyards, as dormitory-housed employees could utilize inexpensive express bus service to make weekend visits home. As an example of relative distances, in 2012 Korea it takes approximately five hours driving time to reach Seoul from the most distant southeast point, which is roughly Geoje Island.

[44] Alice H. Amsden, Asia's Next Giant: South Korea and Late Industrialization (New York: Oxford University Press, 1989), p. 276. The South Korean government paid for the infrastructure improvements necessary. Amsden points out that this was common practice and had also been done for the construction of POSCO's integrated steel mill at Pohang.

The Okpo shipyard on Geoje Island, initially begun in 1973 by the Korean Shipbuilding and Marine Engineering Company (KSEC), has been called "a masterpiece of shipbuilding ingenuity."[45] Located in what is now Aju-Dong, Geoje Island, the Okpo yard's construction was facilitated by the South Korean government permitting relocation of the inhabitants of two small villages, Ajoo and Ayang.[46] The villagers were compulsorily moved to modern, newly constructed housing located outside the intended shipyard footprint.[47] This relocation permitted the Okpo Shipyard construction project to complete the removal of Daedeung Mountain, a requirement for completing the yard layout.[48] Such removal of obstructive natural features was common in the construction of all of Korea's three major shipyards as expanding order books required larger and larger marshaling yards, stock yards, steel fabrication sites and office space. However, an important factor to be recognized is that the space to expand was available if the shipyards were willing to make the infrastructure improvements because they would face no obstacle from either government

[45] Daniel Todd, Industrial Dislocation: The Case of Global Shipbuilding (London: Routledge, 1991), p. 188. Todd notes that at the time of construction the Okpo Shipyard's "spacious layout was expressly modeled to accommodate optimum flow-line principles." Designed by A&P Appledore, it also had one of the two largest shipbuilding cranes in the world (a Krupp crane capable of lifting 900 tons) and was designed with the construction of complex vessels such as chemical and gas carriers in mind.

[46] Jung, DSME Okpo Shipyard, p. 169. In 1978 the South Korean Government forced KSEC to turn the Okpo Shipyard over to Daewoo Shipbuilding and Marine Engineering (DSME) due to KSEC's insufficient financial liquidity.

[47] Byung-Kook Kim, "The Labyrinth of Solitude," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 161. Kim describes a similar situation regarding government land purchases for the Gyeongbu (Seoul-Busan) Expressway, another high-priority national industrial project. "[President Park Chung Hee] directed provincial governors and the Seoul mayor to get landowners' consent to sell within one week by 'mobilizing county magistrates, town heads and other civil servants' under the Ministry of Home Affairs' control." Such near-expropriations were common occurrences in South Korea's heavy and chemical industrialization drive.

[48] Jung, DSME Okpo Shipyard, pp. 97, 172. Daedeung Mountain was initially 72 meters high, 82, 645 square meters in area, and composed primarily of basalt and granite. Seen as an obstacle requiring removal to allow the yard footprint to be laid out as planned, the rubble from the mountain was intended for use in constructing embankments and as fill for reclaimed land in Okpo Bay. The biggest construction project in South Korea at the time, 2.4 million meters of rock was eventually moved to other locations within the shipyard facilities from the former site of Daedeung Mountain. 500 tons of high explosive was used in the demolition project.

bureaucracy or prior tenants. This ability to build on "greenfield" sites with complete governmental support stands in great contrast to the position of British shipyards and has to be considered one of the major advantages accruing to Korean shipbuilding.

THE KOREAN LABOR FORCE AND POSTWAR KOREAN HISTORY

Recognizing the quality of the Korean labor force is key to understanding the rapidity of Korean industrialization. Korean culture and history had put into position the factors which would produce a generation of world-class white and blue-collar workers who accomplished unprecedented feats in the process of industrializing their nation.

Of course, the most important factor in the development of the South Korean work force was Korea's deep poverty. During the first three quarters of the Twentieth Century, Korea was a very poor nation located in a rough, turbulent region filled with rapacious predators. Dominated in turn by Imperial China, Imperial Russia, and Imperial Japan (which annexed Korea in 1910), between 1900 and 1953 Korea and its people were never able to concentrate on building up the domestic economy solely to benefit Koreans.[49] The Second World War saw no battles fought in Korea but the Japanese war effort drained the country of as much manufacturing and agricultural production as Japan could forcibly extract.[50] In addition to the material resources

[49] Crawford Young, The African Colonial State in Comparative Perspective (New Haven: Yale University Press, 1994), p. 251. Young notes that in Korea "systematic reorganization of the agrarian zones provided most of the resources needed for the [Japanese] colonial project."

[50] Mason, Edward S., et al. The Economic and Social Modernization of the Republic of Korea. (Cambridge: Harvard University Press, 1980) pp. 83, 85. The Korean economy under mercantilist Japanese colonial rule was designed to provide foodstuffs to the metropole and accept manufactured goods in return. The authors note that "throughout most of the 1920's and 1930's, foodstuffs accounted for 60 percent and more of Korean exports, most of which were destined for Japan. From 1925 through 1939, an average of 40 percent of Korea's total rice crop was exported to Japan." The Korean rice crop increased but at the direct expense of Koreans: tenant farming, as opposed to actual ownership, greatly increased during the period of colonial rule.

extracted, there was a major human cost as well. Large numbers of Koreans were forced to move to other sections of the Japanese Empire to work as unskilled labor.[51] Korea, a primarily agrarian nation, suffered absolute as well as relative losses under colonial rule. As Edward Mason put it, "the main inheritance from the Japanese in agriculture in 1945 was an impoverished, hard-working mass of tenant farmers."[52]

Following the end of World War II, Korea was effectively divided by Russia and the United States at the 38th Parallel. The northern half was entered by Soviet troops who disarmed and repatriated the Japanese colonial government. The southern half was occupied by American troops. A temporary postwar American Military Government in Korea was installed in September 1945 to oversee a transition to Korean civilian rule. The initial intention of the United Nations toward Korea was to establish a united, independent country. However, the forms of government established in the southern and northern occupation zones were totally different and completely opposed to one another. Soviet and American cooperation gradually dwindled to mere formalities as the Koreans on either side of the 38th parallel proceeded to form economies that had no hope of being peacefully combined. At American request the United Nations in 1947 formed the Temporary Commission on Korea (UNTCOK) to supervise general elections in all Korea. This commission was refused entry into the Soviet-occupied northern half of the country.[53] With the northern half of the country refusing to participate, elections took place in the southern half in May 1948. American forces returned power to the elected South Korean civilian government on

[51] Mason, "Modernization," p. 79. At the end of the Second World War there were nearly two million Koreans working in mainland Japan as well as another million working in Manchuria.
[52] Ibid., p. 10.
[53] Michael E. Robinson, Korea's Twentieth-Century Odyssey: A Short History. (Honolulu: University of Hawai'i Press, 2007), p. 110.

15 August 1948. This action effectively formalized the national division which had been gradually taking place since September 1945.

Once established, the financially strapped and aid-dependent[54] South Korean government had to spend much of its meager funding fighting Communist guerillas raised within its own territory, not to mention others dispatched from Soviet-influenced North Korea.[55] The steady escalation of Communist aggression finally culminated in the summer of 1950 with a full-scale mechanized military invasion from North Korea. The United Nations, led by the United States, intervened on behalf of the South and prevented its quick collapse. Consequently, the war dragged on for four years as the warring armies moved up and down the peninsula. During this time the capital and most important Korean city, Seoul, changed hands four times. The devastation in both the North and South was extreme. In 1953, at the end of the Korean War, most of South Korea was in ruins and it was arguably the poorest nation on earth.[56] It was gratefully receiving foreign assistance from the likes of Ethiopia and the Philippines. There were many legacies from the war, but two of the most important for South Korea's future history were an abiding fear of another Northern invasion and the establishment of the South Korean military as the legitimate and final guarantor of South Korean national survival. These factors would play a very large part in the grudging acceptance of military rule and consequent unilateral governmental action not normally permitted in a democratic country. In effect, South

[54] Mason, "Modernization," p. 176. Foreign aid, mostly from the U.S., "financed practically the total of Korea's imports since regular commercial exports were negligible during this period."
[55] Bruce Cumings, Korea's Place in the Sun: A Modern History, 2nd ed. (New York: W.W. Norton, 2005), pp. 217-224, 243-247. These sections cover the Yeosu and Cheju-do Communist insurrections as well.
[56] Junghyo Ahn, White Badge (New York: Soho Press, 1989), p. 54. Ahn describes how, as a boy, going to the garbage dump outside the American military base and picking through the scraps often provided his family with the best food they would have that day. Eventually Ahn's father joined him in these searches.

Korea under the threat of invasion and conquest by the North operated under a *de facto*, if not *de jure*, Defense of the Realm Act for more than forty years.[57]

Once the Korean War was effectively over[58], a tremendous hunger for education swiftly manifested itself as one of the prime concerns of the South Korean populace.[59] Education is and for millennia has been a tremendously valued attribute among Koreans. Young Korean men during the Silla Dynasty (356-918 A.D.) were already noted as assiduously studying the five main classical texts of Confucian learning. Bruce Cumings noted that in the Choson Dynasty, (1392-1910), "the primary method to bettering a family's station in life was through education, a kind of socio-economic upward mobility; study therefore went on ceaselessly, morning, noon and night."[60] King Sejong, who ruled the Choson Dynasty from 1418 to 1450, invented the modern, extremely logical Korean alphabet known as *Han'gul*. Reputed to be a genius himself, he did this so as to allow the commoners of his country to be able to read and write without the necessity of spending many years learning complicated Chinese pictographs.[61]

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[57] The Defense of the Realm Act was enacted in the United Kingdom in 1914. It effectively granted the British monarch, through his ministers and Cabinet, control over almost every facet of life and property existing in the United Kingdom. It was never formally repealed but subsequent postwar legislation made most of its provisions invalid. In South Korea, democratic government can only be said to have been completely unfettered since 1992, when President Young Sam Kim was elected.

[58] The war has never officially ended. An armistice was signed in 1953 which ended the major fighting but no peace treaty has ever been signed. The fact that South and North Korea are still officially at war has played a major role in South Korean politics and economics from 1953 to the present day.

[59] Amsden, "Asia's Next Giant," p. 217. According to Amsden, one year after the end of the war Korea already had "as much as 17% of its population enrolled in school."

[60]Cumings, "Korea's Place," p. 59. Cumings also remarked that, due to study requirements, Korean schoolchildren today may only sleep four hours per night. Personal experience of the author with Korean high school students confirms Cumings' observation.

[61] Michael Breen, The Koreans (New York: St. Martin's Press, 1998), p. 91.King Sejong is, without a doubt, the national figure Koreans most admire. During his reign (1418-1450) the Choson dynasty enjoyed good government, peace and good harvests. While his introduction of wet paddy farming techniques and rice transplantation methods from China contributed greatly to those harvests and general Choson prosperity, Michael Breen refers to King Sejong's invention of *Han'gul* as "his greatest contribution to history." Breen notes the emergence of *Han'gul* as "striking, coming as it does from the Chinese cultural sphere where the complex characters serve as a conspiracy by snobs who have mastered them to keep the masses illiterate."

While *Han'gul* was rapidly adopted by lower-status groups such as the peasantry, women, and the military, it did not come into general use until the twentieth century.[62] However, when it was finally brought into general use after the Second World War, it proved to be a very useful tool for rapidly raising the literacy rate in South Korea.[63] Koreans still work very hard at acquiring education-based skills and their assiduous efforts toward that acquisition invariably pays real-world dividends. As a consequence, the average Korean high school student graduates with an educational attainment level approximately equivalent to that of the average American college junior.[64] This means that the average Korean high school graduate, who generally learns most of what he will need for his adult career in high school, has a four-year time advantage over his Western counterpart. It also means that in Korea, even the blue-collar work force with no post-secondary education has a considerably higher educational achievement level than its Western equivalent. This high baseline level of education plays a very large part in the ability of Korean companies to flexibly shift their work force between the manufacture of different products.

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[62] Cumings, "Korea's Place," p. 66.

[63] Dr. Sang-Mok Suh. "The Evolution of the Korean Economy: A Historical Perspective," Working Paper No. 8603, Korea Development Institute, 1989, p. 6. *Han'gul* was restricted to lower-status social groups until the end of the Second World War. This was due to three causes. First, prior to the annexation of Korea by Japan in 1910, the upper-class socioeconomic groups used Chinese ideographs in much of their writing. Second, after the annexation, the Japanese language was forced on the Korean people in an endeavor to overwrite their culture and assimilate them into the Japanese Empire. This policy eventually reached its end point when all Koreans had to take a Japanese name and the use of Korean for any official or public business was forbidden by law. Once the Japanese were deposed and deported at the end of World War II, popular opinion prevented the upper-class socioeconomic groups from reassuming primacy as many of them had been guilty of collaboration with the Japanese. The unleashing of Korean nationalism invariably led to the widespread reintroduction of *Han'gul* teaching, and the policy was an instant success. From a 22 per cent literacy rate in 1945, by 1960 the literacy rate was 72 per cent.

[64] Cumings, "Korea's Place," p. 344.

Korea is considered "both a general case of a well-educated late industrializing country and a special case of an exceptionally well-educated one."[65] Complementing the high Korean educational achievement level was a major wage disparity just waiting to be exploited. In 1975 the Korean manufacturing production work force was earning $0.34 per hour compared to Japanese earnings of $3.05 and U.S. costs of $6.36.[66] The twin advantages of higher educational skill and much lower compensation costs were paradigm-changing elements. They represented formidable weapons in South Korea's battle to wrest a considerable amount of manufacturing market share away from its worldwide competition.

Another major factor played heavily into the development of the South Korean work force: the Republic of Korea (R.O.K.) Army. By law, from the end of the Korean War until 2013, every South Korean male citizen owed his country two years of military service.[67] For many military conscripts their military service was a life-changing experience. As an example, in the period between 1951 and 1970, the R.O.K. Army played a huge part in eradicating illiteracy in South Korea, educating a total of approximately one million men to at least basic literacy levels.[68] Moreover, a

[65] Amsden, "Asia's Next Giant," p. 219.
[66] Frederic C. Deyo, Beneath the Miracle: Labor Subordination in the New Asian Industrialism (Berkeley: University of California Press, 1989), p. 91. Deyo provides a 1988 U.S. Department of Labor, Bureau of Labor Statistics chart showing hourly compensation costs in U.S. dollars for manufacturing production workers in selected countries. The countries include the U.S., Japan, Mexico, Brazil, Hong Kong, Taiwan, Singapore and South Korea and the comparisons are made in 1975, 1980 and 1986. In 1986 American workers were making $13.21 per hour, Japanese workers were making $9.47 per hour, and South Koreans were making $1.39 per hour. Wage increases as an overall percentage remained roughly equivalent as did the Korean labor cost advantage. It is worthy of note to recognize that as of the date of this writing (2012) South Korea is beginning to see the kind of "hollowing out" bemoaned by earlier industrial powerhouses such as the U.S. and Japan as the Korean *chaebôl* move production to lower-cost facilities in China.
[67] The military service obligation has, as of 2013, been reduced to eighteen months.
[68] Do Young Chang, "The Republic of Korea Army and its Role in National Development," Asian Affairs Vol. 13, No. 4 (Winter, 1986-1987), p. 59. Chang notes that the military had three programs for raising literacy levels: basic, elementary education, and junior high school. Approximately 600,000 men finished the basic literacy course; another 400,000 completed the elementary and junior high courses.

considerable amount of technical training was provided to South Korean servicemen, a great many of whom would later carry this training to the shop floors of Korean industries. One Korean historian noted that

> The major portion of the education and training in the (R.O.K.) army's [technical] branch schools has been in technical skills that were necessary for or related to the nation's developing industries. The army-trained manpower had obviously been the main source of skilled labor in the 1960's and early 1970's, when the Republic of Korea lacked skilled workers for rapidly growing industries.[69]

The R.O.K. military also provided education of a different, but equally important, sort. It is an understatement to say the R.O.K. military does not coddle its recruits. After two years of military service, young South Korean men fully understand military discipline and have learned through harsh experience to respond almost automatically to command.[70] This deliberate molding of recruits' character to the acceptance of military authority carried on into civilian life.[71] Donald Kirk notes that in the initial overseas ventures (Thailand, Saudi Arabia) undertaken by Hyundai Construction Company in the 1960's and 1970's, in which successful results were considered a major national priority, Hyundai's workforce was deliberately organized along

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[69] Chang, "Army," p. 59-60. Chang also cites the Hapdong News Agency's *Korea Annual* for 1969 and 1971 to show that in 1970 Korea had only 1.3 million workers, out of a total work force of 10 million, working in mining and manufacturing. Noting that by the end of 1975 more than 685,000 officers and men had received Military Operational Specialty technical branch training, he concludes that a large percentage of the 1.3 million mining and manufacturing workers were veterans who had acquired related training while in the military.

[70] Cumings, "Korea's Place," p. 303. Cumings states that the Korean military had "an authoritarian practice that chilled even the most hard-bitten American officers" and "provided a school for industrial discipline."

[71] The author notes that this tendency is very evident in daily shipyard activities. All Class Society surveyors entering or leaving DSME, SHI or HHI shipyards are saluted by the guards at the gate in a manner equivalent to that military courtesy rendered to commissioned officers. At major milestone ceremonies in both DSME and SHI, something which the author has seen dozens of times, the safety and success prayer is always read by a senior shipyard production foreman with the upright bearing and unmistakably stentorian tones of an experienced senior non-commissioned officer.

military lines.[72] Consequently, when South Korea began to implement its third Five-Year Plan in 1972, with its extreme emphasis on heavy industrialization and shipbuilding, the Korean labor force was exactly suited for the task. It was smart, educated, disciplined, inured to hard work and very hungry for economic betterment.[73]

SHIPBUILDING CONSTRUCTION OVERSIGHT DIFFERENCES BETWEEN SOUTH KOREA AND BRITAIN

Two major construction oversight differences clearly set British shipbuilding apart from both Japanese and Korean shipbuilders. These two differences were in the use of skilled labor and the level of managerial intervention.[74] Edward Lorenz refers to the two primary methods of construction oversight as *bureaucratic administration* and *craft administration.* He defines bureaucratic administration as

> having the following features of the work process planned in advance by persons not on the work crew: the location of tasks; the movement of tools, materials and workers to those locations; sometimes the movements performed to complete tasks; the time allotments for tasks; and the inspection criteria for particular operations.

Craft administration, by comparison, is defined as having "these characteristics of the work process governed by workers in accordance with craft principles."[75] The choice of which oversight method to use was initially dictated to shipbuilders by the knowledge and expertise available in the construction workforce.

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[72] Donald Kirk, Korean Dynasty: Hyundai and Chung Ju Yung (Hong Kong: Asia 2000 Ltd., 1994), p. 84. Kirk stated that "those who had gone through reserve officers' training in college and served as junior officers made ideal leaders of small units."

[73] T.C. Rhee, "South Korea's Economic Development and Its Socio-Political Impact," Asian Survey Vol.13, No. 7 (July 1973), 677-690.

[74] Edward H. Lorenz, "An Evolutionary Explanation for Competitive Decline: The British Shipbuilding Industry, 1890-1970," The Journal of Economic History, Vol. 51, No. 4 (Dec. 1991), p. 911-912. He notes that his definition of "bureaucratic administration" and "craft administration" is taken from Arthur L. Stinchcombe's "Bureaucratic and Craft Administration," Administrative Science Quarterly, 4, Sept. 1959, p. 170.

[75] Lorenz, "Explanation," p. 912.

British shipbuilders followed the craft administration principle of construction oversight. In the first half of the 20th Century they were accustomed to the luxury of having a large number of skilled craftsmen available who were experts at their trades. British shipyard workers, in a system which evolved during the 19th Century when Britain produced the vast majority of the world's ships, were organized into seventeen craft unions.[76] These unions were, in the main, responsible for supplying to a shipbuilder whatever might be needed in the way of skilled craftsmen. Craft unions such as the Boilermakers Society required long apprenticeships for advancement in the trade, thus insuring that skilled workers at the highest levels were extremely competent. [77] Britain's long experience with high levels of talent and experience on the shop floor had allowed the emergence of a work culture where British shipbuilders required much less specialist and managerial talent to oversee construction. [78]

Parallels can clearly be drawn between British military practice and British shipyard construction practice. Both devolved a tremendous amount of responsibility on long-service but non-managerial level subordinates. In the shipbuilding industry these men were not referred to as "non-commissioned officers," but they effectively performed the same role. As Edward Lorenz noted, "well into the twentieth century many British

[76] By the 1970's this number had been reduced to fifteen unions. They were the Amalgamated Society of Boilermakers, Shipwrights, Blacksmiths and Structural Workers; the Electrical Trades Union; the Amalgamated Engineering Union; the National Union of General and Municipal Workers; the Amalgamated Society of Painters and Decorators; the Plumbing Trades Union; the National Union of Sheet Metal Workers and Coppersmiths; the Transport and General Workers Union; the Amalgamated Society of Woodworkers; the United French Polishers Society; the Heating and Domestic Engineers Union; the United Patternmakers Association; the Amalgamated Society of Woodcutting Machinists; the Clerical and Administrative Workers Union and the Draughtsmen's and Allied Technicians' Association.

[77] John Foster and Charles Woolfson, The Politics of the UCS Work-In. (London: Lawrence and Wishart, 1986), p. 134. The apprenticeship period was normally at least five years and often extended to seven.

[78] Lorenz, "Explanation," pp. 921-922

industrialists remained highly dependent on their skilled workers for shop-floor control and organization."[79] This reliance permitted what the 1962 Patton Report referred to as "a long tradition of working with a minimum managerial and technical staff."[80] The British Shipbuilding 1972 report by Booz, Allen and Hamilton (BAH Report) noted a truly critical difference between Asian and British shipbuilding when it stated that "Informal scheduling and planning, depending on the skill and experience at foreman level, is often the only detailed planning available once original plans have been bypassed and due dates have been issued."[81] One highly experienced machinery superintendent who had worked on the Clyde in the 1960's and 1970's confirmed this when discussing British shipyard drawing fabrication in those days. He said, "The design department made a lot of the drawings after the ship was built because by then they had been shown what had actually been done!"[82]

This lack of institutional structure represents an almost unimaginable difference from the way that modern Korean shipyards work. Original construction plans do not get "bypassed," as this would be a critical error for a yard engaged in constructing multiple vessels to the same design. They are revised as frequently as necessary—and certainly whenever problems are found--by dedicated design engineers who are tasked with making certain that all construction details of the vessel are properly captured

[79] Edward H. Lorenz, Economic Decline in Britain: The Case of the Shipbuilding Industry, 1860-1970. (Oxford: Clarendon Press, 1991), p. 68.
[80] James Patton, et al., Productivity and Research in Shipbuilding: Report of the Main Committee, Under the Chairmanship of Mr. James Patton, O.B.E., to the Joint Industry Committee. (London: Gresham Press, 1962), p. 75. It should be noted here that this "tradition" is exactly the kind of weakness with regard to the undersupply of trained engineers available for construction oversight that made it so difficult for British shipbuilders to adapt to the problems posed by larger vessels and longer production runs.
[81] Booz, Allen and Hamilton BV, British Shipbuilding, 1972: A Report to the Department of Trade and Industry. (London: HMSO, 1973), pp. 143-144.
[82] Mr. Rolf Olsson, Senior Machinery Superintendent, GOLAR Shipping Co., personal interview, 16 May 2013.

and recorded in the vessel documentation.[83] The revised plans, usually after approval/reapproval by a classification society, are then provided to production line management. It is their specific obligation to insure that the people actually building the vessel have the latest plan revisions easily available to them. Moreover, production line management and actual production personnel are working under the near-constant observation of shipyard quality control personnel. These quality control personnel, who report to a different internal shipyard organization, have the authority to immediately stop work if they see incorrect or unsafe actions taking place. In the bureaucratically administered, hierarchically systematic production system of Korean shipyards, a shop foreman or welding supervisor simply would not have the authority to formally change or waive approved construction details. If it became known that an individual had even informally done so, his continued employment would be in serious jeopardy.

French shipyards in the early 20th Century were early examples of bureaucratic administration. The French were forced to institute a bureaucratic, top-down system of production management because, unlike their British competitors, the French production personnel actually building the ships did not have sufficient training or experience to operate independently.[84] As had the French, both the Japanese and the Koreans adopted this more centralized approach to production management. They did so for the same reason: the relative lack of skill in the local shipbuilding labor force. However, the massive increases in vessel size and construction scale, along with the

[83] Detailed plans may go through a considerable number of revisions before a vessel is completed. For example, plans for main equipment foundations are often revised in light of the results of updated stress calculations or finite element analysis. In most Korean shipyards, pre-production plans intended for third party review and analysis start with Revision A, followed by Revision B, etc. Production plans start with Revision 0, followed by Revision 1, etc. The final "as-built" plans provided to the vessel at delivery are designated as Revision Z or Revision 00.
[84] Lorenz, "Explanation," p. 921.

move to vessel standardization and series fabrication, eventually proved the hierarchical, bureaucratic administrative model to be the more efficiently productive one for the shipbuilding circumstances prevailing in the second half of the 20th Century.[85]

In the late 19th and early 20th Centuries, the British model of highly skilled craftsmen making "bespoke" adjustments to initial building plans actually was a competitive advantage.[86] In that era ships were smaller, less specialized and less uniform. Innovative "one-off" solutions for individual vessels that might be inordinately expensive if performed on a mass production scale were considered acceptable costs, particularly when the exercise of such initiative by front-line production personnel was seen as diminishing the cost of design and management overhead. When compared with other Western European shipbuilders, an observer noted that in British shipyards "the comparatively small proportion of supervisors is especially striking" and "there is comparatively little production pre-planning."[87] This anomalous condition was explained by a longstanding British managerial perception that "the [shipbuilding] industry's particular technical and market characteristics preclude the use of more systematic methods of production planning."[88]

The Geddes Report recognized this mindset and gently addressed it with the comment that "We would only emphasise that faster throughput and the tighter programming of work will require both more and better qualified supervision than many yards seem to

[85] Lorenz, "Decline," p. 71
[86] Bernard Elbaum and William Lazonick, "The Decline of the British Economy: An Institutional Perspective," Journal of Economic History, Vol. 44, No. 2 (June 1984), pp. 573-574.
[87] Lorenz, "Decline," p. 93.
[88] Ibid., p. 94. Lorenz sees this inability as a consequence of managerial unwillingness to take actions which might induce a strike or other disruptive labor action.

possess at present."[89] Britain's shipowners, in their responses to Geddes Report questionnaires, were considerably less tactful. They generally found British shipyard management to be poor and were not reticent about saying so. One critical respondent was Sir Stewart MacTier, Chairman of Alfred Holt and Co. Alfred Holt and Co. owned the Blue Funnel Line, one of Britain's major shipping concerns. MacTier stated that "in his view, there had to be more interest in production planning and production engineering, and this could only be achieved by an influx of graduates and the introduction of top management from other industries."[90] Other major British shipowners such as the directors of Clan Line, BP and P&O, echoed MacTier's observations in their statements to the Shipbuilding Inquiry Committee.[91] They clearly saw British shipbuilding management and engineering as major problem areas in need of serious attention. [92]

[89] Geddes Report, p. 85.

[90] Lewis Johnman and Hugh Murphy, British Shipbuilding and the State since 1918: A Political Economy of Decline. (Ithaca: Regatta Press, 2002), p. 195. The comments are taken from PRO, BT 186/32, Shipbuilding Inquiry Committee, Note on a Meeting with Sir Stewart MacTier of Alfred Holt and Co., 6 July 1965, and Notes by Alfred Holt and Co., Liverpool, 11 August 1965.

[91] Ibid., citing PRO, BT 186/32, Shipbuilding Inquiry Committee, Peninsular and Oriental Steam Navigation Company, Evidence for SIC, August, 1965, PRO, BT 186/32, SIC, Replies to Questionnaire from the Ben Line, Cunard, British and Commonwealth Shipping and Shaw Saville and Albion, August-October 1965, and PRO, BT 186/32, SIC, BP Tanker Company, Completed Questionnaire to SIC, undated but probably August-September 1965. It should be noted here that Shaw Saville and Albion's response to the questionnaire noted that poor responsiveness by shipyard subcontractors was "the root of all our industrial troubles affecting delivery of home requirements and exports alike." This issue remains a problem for shipbuilders to the present day. As ships have grown more complex, shipyards have become even more susceptible to delays caused by subcontractor mismanagement. Often long lead time items ordered from distant firms are found to have problems taking considerably longer to repair than expected, and these delays invariably impinge on the final vessel delivery date.

[92] Some of the British shipyards publicly acknowledged these failings. In its Annual Report for 1966, Harland and Wolff acknowledged that it had "problems of an organizational and commercial nature. The management structure has been untidy and has lacked strength on the marketing side." Harland and Wolff Heavy Industries Ltd., Harland and Wolff Annual Report, 1966. Belfast: Harland and Wolff, 1967.

The modern era of standardized shipbuilding did not come into its own until the massive American production began for World War II.[93] Once the Americans began making ships on a scale never before seen and utilizing the assembly-line techniques commonly used in the American automobile industry, shipbuilding was changed forever. Mass assembly-line ship construction meant the British craft administration method of shipbuilding was doomed. Standardization was a prerequisite to efficient mass production and it could generally be adapted very easily to a relatively untrained workforce as long as there were sufficient numbers of production managers and supervisory personnel.[94] "Rosie the Riveter" of wartime aircraft manufacturing fame had many counterparts in American shipyards. She served as a clear example to late-developing industrial nations that proper management could successfully obtain good industrial production from intelligent but untrained laborers.[95] Unfortunately for British shipbuilding as a whole, the realization that efficient modern ship construction demanded major production management/technique changes came too late and met too much internal resistance. In a very Darwinian way, British shipbuilding's failure

[93] Todd, "Dislocation," p. 13. Daniel Ludwig, head of National Bulk Carriers, had owned and operated a shipyard in Norfolk, Virginia, during World War II. In the early 1950's, he was looking for an expansion site capable of constructing larger vessels than his Norfolk works would permit. He found the Kure Naval Dockyard in Japan, which had a huge building dock, available for a ten year lease. Ludwig took the flow-line series-production construction techniques he used during the war to Japan and had a very successful decade building tankers there. The technology transfer was of great benefit to the Japanese, who studied it closely and made improvements. By the 1960's Japan had slashed the man-hours needed to build one gross ton of tanker from 100 in 1958 to 40 in 1964. Korea as a late industrializer was able to adopt many of the Japanese improvements for the construction and operation of Korean shipyards.

[94] Ibid., p. 41. Referring to the U.S. Government's WW-II era Emergency Fleet Corporation's work force, Todd noted that "Scratch labour forces, subjected to only a rudimentary training in shipyard practices, proved perfectly adequate for the exacting business of producing standard ships in unprecedented numbers."

[95] David S. Landes, The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present. (Cambridge: Cambridge University Press, 1969.), p. 501. Landes notes that "one of the salient characteristics of modern technology is the division and simplification of complex tasks, so that work that once called for a high degree of skill can be performed by the unskilled. Moreover business enterprise has learned to replace or supplement slow and costly methods of man-to-man apprenticeship by group training programmes, so that raw men, fresh in from the country, can be turned into semiskilled workers in a matter of weeks to months. Some enterprises even prefer such new men to experienced workers on the ground that, while they have more to learn, they have less to unlearn."

to adapt to changed circumstances played a significant part in the demise of their industry.

SALARIED ENGINEERS AND CONCENTRATING ON THE SHOP FLOOR

Modern-era shipbuilding, with its long production runs of standardized vessels, seeks to maximize economies of scale through consistency and undeviating repetition in construction. The economic necessity to achieve the optimal productive utilization of the hard-won and expensive shipyard infrastructure justifies the high cost of the bureaucratic management required.[96] As an example, building increasingly larger vessels means dealing with bigger and heavier vessel components. This in turn demands more capital investment in higher capacity lifting/transport appliances and fabrication machinery.

This necessity for higher capital investment is particularly true with regard to cranes. Cranes are the most prominent "muscles" of a shipyard and, as Table 2 showed, are required in almost all aspects of shipbuilding. Indeed, one quite good way to assess the raw technical capacity of any given newbuilding shipyard is to count the number of cranes and their tonnage ratings. Efficient utilization of these expensive construction force multipliers cannot be done without precise and detailed logistical planning for production flows. The proper management of resource (raw materials, production personnel) flow into the fabrication areas and the timely dispatch of finished assemblies from them requires personnel who not only understand the process of construction but the logistical imperatives connected to that construction.

[96] Lorenz, "Decline," p. 70.

Amsden notes that for late-industrializing countries that are attempting to develop a manufacturing industry,

> The shopfloor is the focus because it is here that borrowed technology is first made operational and later optimized. Because products similar to those that the company produces are internationally available, the strategic focus is necessarily found on the shopfloor, where the achievement of incremental, yet cumulative improvements in productivity and product specification are essential to enhance price and quality competitiveness.[97]

This is one of the critical areas where British shipbuilding practice and Korean shipbuilding practice were highly divergent. The Koreans, knowing they did not have a shopfloor workforce familiar with the requirements of flow-line production, followed the historical lead of other shipbuilding countries which had also found they lacked sufficient skilled labor to utilize an informal craft administration management system. Like the French and Japanese had before them, they put salaried, degreed engineers who did understand flow-line production requirements in managerial positions on the shopfloor.[98] Consequently, management and administration were intentionally placed in much closer communication with the shopfloor workforce than in the British system. While this additional level of management cost more than craft administration, it had the advantage of preventing many potential mistakes and mitigating the deleterious effects in damage and downtime when mistakes inevitably occurred.[99]

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[97] Amsden, "Asia's Next Giant," p. 5.

[98] This manning policy is still in use. The author's experience is that many production personnel serving in foreman positions in both DSME and SHI are college-degreed engineers, often from the Korea Maritime Academy. That hiring personnel with such backgrounds for these positions is a specific policy of Samsung Heavy Industries was confirmed in an oral interview on 16 Oct. 2012 by Mr. Ki-Dong Park, Project Manager, Pacific Drilling Company Drillship Project, Samsung Heavy Industries.

[99] The author's sailing experiences with 1970's-era Korean-built vessels from HHI was that their quality, while acceptable, was uncertain and somewhat eccentrically non-standard. A good example would be the flange alignments on large pipes. Flanges joining pipes should be, according to accepted piping standards, in alignment with one another axially, vertically and horizontally. Japanese-built

While personnel-intensive and more expensive in man-hour terms, close engineering supervision proved a major asset to Korean management.[100] It required many more mid-level managers/engineers to become personally knowledgeable about the actual vessel production process. This paid tremendous dividends when Korean yards had to ramp up production to meet the requirements of rapidly growing order books, something that happened repeatedly.[101]

British shipyard management, relying so greatly on their quasi-autonomous skilled labor force, found itself at a great disadvantage with regard to providing the guidance required to improve production throughput. There simply weren't enough sufficiently knowledgeable management personnel available to replace the skilled labor force when there were manpower shortages, something that happened often due to strikes, craft demarcation issues and absenteeism.[102] This disadvantage was even more greatly exacerbated when the skilled British workforce deliberately chose to engage in

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vessels invariably had proper flange alignment. Korean vessels in that era, however, did not always meet these standards in that it was not uncommon to find flanges which were tilted or misaligned. While such a flange might, with a proper gasket, achieve an operable fluid seal, pipe replacement posed a difficult problem for future maintenance. Every such non-standard joint was a bespoke fit which might well have been brought into alignment only through unacceptable levels of pipe stress. Its proper replacement would often require specialized pipefitting skills not normally found onboard modern ships. Such problems gradually became much less common in Korean shipyards by the end of the 1980s.

[100] It is logical to assume that even with a *tabula rasa* from which to start, a bureaucratic management system such as is utilized in Korea could not have been implemented in Britain. Sufficient trained engineers were not available. Even if they had been, the wage differential between British and Korean engineers would have made implementation of such a scheme prohibitively expensive.

[101] Amsden, "Asia's Next Giant," p. 172. She notes that between 1960 and 1980 the number of engineers in Korea's manufacturing sector increased tenfold while managerial personnel increased but 2.2 times.

[102] The Geddes Report noted that "the use of labour in shipbuilding is wasteful; nobody who discussed the industry with us has challenged this statement. Partly this waste is due to shortcomings of planning and supervision, partly to the practices on which the unions insist, and partly to the level of response and application of the individual participant which is itself conditioned by the first two factors." Geddes Report, p. 110. It should also be noted that as the British shipbuilding industry declined it was the best and most talented employees that "jumped ship" earliest as they were most easily able to find more stable employment.

disruptive labor activities such as slowdowns, overtime bans or "working to rule."[103] Craft administration had many admittedly serious deficiencies when it came to managing modern flow-line production. However, that is what British shipyards used and management was extremely dependent on it being properly practiced if there was to be any hope of satisfactory production progress and timely vessel delivery. In the circumstances it is clear that even strongly motivated employees doing their absolute utmost to make that administrative system work would have had a tough task ahead of them. In the late 1960's and 1970's, British shipyard management was dealing with an increasingly dissatisfied, truculent and strike-prone work force. Depending on them to operate this administrative system properly was not wise policy. It was a mistake management paid heavily for in many ways.

One other point should be made here with regard to the British shipbuilding labor force. British shipyards were dealing with a relatively old group of workers.[104] The BAH Report noted that in the five merchant shipbuilding companies it studied more than 50% of the work force was over 40 years old and 25% of the work force was over 50 years old. This constituted a two-edged sword for British shipbuilding management. While older employees were more knowledgeable and experienced as shipbuilders, thus better able to carry through the informal craft administration required by the British style of management, older employees were also often imbued

[103] "Many of the tasks performed in the construction of a ship give the work-group a high degree of discretion…to allocate work and control the speed and co-ordination with those who precede and follow them. Because the work lends itself to self-supervision the traditions of the industry protect the autonomy of the workgroup." Commission on Industrial Relations, Shipbuilding and Shiprepairing, Report No. 22, HMSO (London, 1971), Cmnd. 4756, p. 102. "Working to rule" is when union personnel insist on absolute compliance with every work rule in the contract between the union and the company. It is something short of a strike but can have a tremendously negative effect on productivity when fully applied by workers intent on slowing down production.
[104] BAH Report, pp.159-163.

with the history of past grievances.[105] This often made them more rigid in their attitudes with regard to accepting changes in craft demarcation and production methods. Older employees would also generally have been more independently intractable when they felt wronged by shipyard management, a factor which undoubtedly led to earlier willingness to resort to industrial action to resolve problems. The issue of age was also a contributing factor with regard to delays in actual ship construction. The Geddes Report referred to the work as "tough and largely outdoor"[106] and noted that, "Of its nature a good deal of shipbuilding work must be conducted either in large sheds which are not easy to heat or on open berths where working has to take place sometimes in very cramped surroundings and sometimes in conditions which are cold and wet." Such physically demanding work is, all other things being equal, better suited to younger men, particularly given the inclement weather often encountered in Britain's shipbuilding districts.[107] Former Clyde shipyard workers remembered absenteeism as being particularly high during periods of extreme heat or cold.[108]

Tim Colton, who spent a long and distinguished career in the shipbuilding industry, graduated from Glasgow University as a naval architect in 1964. His autobiography casts some light on how one of the major British shipbuilders on the Clyde dealt with

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[105] Geddes Report, p. 112. The Report noted that "the shipbuilding industry is located mainly in the older industrial centres where traditional attitudes by employers and trade unionists tend to be strong and where memories of past disputes and of past periods of depression are more enduring."

[106] Ibid., p. 46.

[107] Heren, Louis. "British Shipbuilders: Proud, Hard Men Who Love a Challenge." The Times (London) 25 June 1980: 12. Heren went to Tyne Shiprepairers in South Shields to see what shipbuilding was like. He noted that while repairing a ship's damaged keel plating, "men crouched in contorted positions" that he "could not have held for more than a few moments," and that "most people would . . .refuse to work under such conditions." Having visited the yard on a rainy day, and returned drenched to the managing director's office, he was told to "imagine working out there in snow or freezing rain…the steel gets so cold it can take the skin off your hands."

[108] Senior Electrical Supervisor Ernest Woodcock, personal interview, 22 January 2013. Woodcock joked about watching Scott Lithgow workers disappear into lavatory stalls with blankets on cold days, not to be seen again until quitting time.

the challenge of foreign competition and technological advance. As part of an apprenticeship scheme for the Shipbuilding Employer's Federation, he combined his undergraduate studies with concurrently working as an apprentice at Lithgow's Shipyard in Glasgow. Including his apprenticeship, in total he worked eight years at Lithgow's. He remarked in his autobiography that, "when I got my degree, the number of university graduates with technical degrees at Lithgow's went up by 50%. And this was a company with 5,000 employees."[109]

Colton recalled that in 1964, after Lithgow's Managing Director, Ross Belch, obtained orders for five vessels on a very quick delivery schedule, "the word 'planning' was used for the first time."[110] Having been already employed in investigating methods to increase steel throughput, Colton was tasked with creating the first production schedule at Lithgow's that incorporated all the facets involved in building the vessel: fabrication, erection, launching and outfitting. Prior to this set of vessels, there had been a general allowance of time for each stage. Launching would take place within two months of completing fabrication; outfitting[111] and delivery would be completed within three months after launching. Modern shipbuilding practice has a considerable amount of the outfitting done prior to the launching of the vessel, thus saving a great amount of time since in many cases it is easier to install equipment (such as heavy engines, large pumps, motors, pipes, etc.) when there is

[109] Tim Colton, Staying Afloat: A Life in Shipbuilding. (Delray Beach, Florida: Maritime Business Strategies, 2009), p. 26.
[110] Ibid., p. 32. How much importance Lithgow's placed on this function at the time is shown by the fact that Colton was a relatively low-level design office employee who was not even involved in management activities. He states that it wasn't really fair to say that no "planning" was going on at Lithgow's, but that it was not referred to as such and was rudimentary even by the standards of advanced contemporary shipyards. Colton stated that "Ross Belch's basic management tool was a single large sheet of grid paper, with hull numbers down the left-hand side and calendar months across the top. The figures in the matrix were tons per month of steel through the fabrication shop and they had to add up to the corporate target."
[111] "Outfitting" is the installation of equipment, piping, wiring and accommodations facilities aboard the vessel.

increased access to individual "blocks." In those days, according to Colton, "the ship that slid into the water was all steel – absolutely no outfitting was done until the ship was in the water and moored in the outfitting basin."[112]

This stands as a major example of how British shipbuilding was technically behind its Japanese and European competition since many of those yards were doing as much outfitting as possible prior to assembly. Outfitting, given all the electrical/electronic wiring that has to be installed as well as the various piping systems, is both difficult and time-consuming. The fact that the British had not yet adopted this policy of pre-outfitting prior to construction is a window into one of the main causes for late deliveries from British shipyards.[113]

Colton remarked that at the start of his planning career, he was provided with no resources, guidance or instructions. Nevertheless, drawing on his academic experience and researching some new American planning techniques enabled him to eventually produce a production schedule that covered the five vessels. A year later he was in charge of planning all Lithgows' contracts, "although the Planning Department still was just me and my one assistant."[114] Colton's recounting of his planning experience at what was arguably the most advanced and proficient shipyard on the Lower Clyde, and thus one of the two or three best shipyards in Britain, only serves to highlight how far behind British shipbuilding had fallen and to confirm the charges made in the

[112] Ibid., p. 32-33.
[113] Olsson, oral interview, 16 May 2013. Mr. Olsson described his surprise when, on a trip to a Swedish shipyard, he saw workers installing complete lighting fixtures on an unattached "block." He had never seen that level of pre-assembly outfitting in any of the British shipyards where he had worked.
[114] Colton, "Staying Afloat," p. 33-34.

Geddes Report about the necessity for major changes in British shipyard management.[115]

In contrast to Britain, Korea's engineering educational system produces large numbers of new engineers yearly and that this has been greatly beneficial to Korean industry: "In terms of sheer quantity, enough engineers have been trained to ensure that sufficient numbers pursue the career intended by their education. A large number of engineers has meant competition among them for the best jobs and the fastest promotions, thereby driving up productivity."[116] This situation was possible in Korea because engineering as a profession, while even today held in high regard despite a massive proliferation of Korean engineers, was even more greatly respected in the period 1960-1985 due to their relative scarcity.[117] Such was not the case in Britain.

[115] Rød, Per Olav, Senior Production Supervisor with Gotaas Larsen, oral interview 12 February 2013. Mr. Rød worked for several years at Govan Shipyard on the Clyde. He was still impressed many years later with how adamant the British management and workers were about clinging to the "old" ways of doing things. According to Rød, they were incredibly resistant to change.
[116] Amsden, "Asia's Next Giant," p. 9.
[117] Mr. H. J. Park, Project Manager/Group Leader, Det Norske Veritas Korea, 23 October 2012. Mr. Park remarked that as a youth in the 1960's, his parents strongly pushed him toward an engineering career. They did so because they saw it as a prestigious and economically remunerative profession with high stability. Mr. Park also noted that there was a serious element of national pride involved as South Koreans firmly believed that advances in Korea's engineering capabilities strengthened the country.

"THE STATUS OF ENGINEERS IN GREAT BRITAIN IS LOWER THAN IN ANY COUNTRY I KNOW OF"[118]

On 25 March 1966, in a speech reported by The Times, Lord Snow, Joint Parliamentary Secretary of the Ministry of Technology, called for Britain to "raise the status of engineers to an extent commensurate with their importance to society." Speaking to an assembly of engineers in London, Lord Snow remarked that "I have said in public more than once that the status of engineers in Great Britain is lower than in any country I know of." For a country arguably *primus inter pares* worldwide with regard to technological advance, it was a stunning admission. Coming from a Labour Party minister three years after Labour Prime Minister Harold Wilson had, in 1963, promised a new "Britain that was going to be forged in the white heat of [technological] revolution," it was a frank admission of how little progress had been made toward that goal.[119] As has been noted earlier, even had British shipbuilders wished to do so, Britain simply did not have sufficient numbers of trained engineering personnel to implement the kind of bureaucratic management oversight later implemented by Koreans and required to compete in modern post-1960's shipbuilding. Britain, as a "First World" nation and one much richer than Korea, certainly had the potential to produce them. However, despite intermittent encouragement given by government to the idea of advancing and increasing engineering and technological

[118] "Engineers Need Higher Status." The Times (London), 25 March 1966: 7. It deserves noting that in an editorial written the same day ("Engineers in Society," p. 13), The Times castigated Lord Snow for his "harsh" judgment. They then stated that unless engineers became less enamored of "conformity," "students of ability will continue to prefer pure science or economics." Snow could not have had his argument more solidly supported than by this attempted rebuttal.

[119] Harold Wilson made this statement to the Labour Party Conference, Scarborough, England, 1 October 1963, as part of a Labour electoral strategy intended to present them as a modernizing alternative to the Conservatives.

training, it simply had not then occurred on anything near the scale required.[120] Why this was the case has been a matter of controversy since before the Second World War.

Corelli Barnett, in The Audit of War: The Illusion and Reality of Britain as a Great Power, severely criticized Britain's engineering training model. Comparing it to the German model, he noted that Britain produced some extremely talented degreed engineers whose quality was equivalent or superior to the best the Germans produced. However, there were relatively very few of them. Barnett provided United Kingdom Government statistics showing that the absolute number of degreed British engineers graduated annually was much less than the German output. Moreover, in his opinion the quality of British technical education short of degree level was greatly inferior to that of Germany both in knowledge transfer and in numbers of individuals trained. Barnett believed this to be a critical failing.[121]

While there has been considerable debate in post-World War II Britain about the problems of British education in general, the difficulties with technical education have been particularly marked for criticism. Bernard Elbaum and William Lazonick concurred with Barnett in finding that the British educational system failed to provide appropriately trained managerial and technical personnel. They stated that "the existing system of higher education was designed almost explicitly to remove its "aristocratic" students as far as possible from the worldly pursuits of business and

[120] Moreover, much contemporary commentary exists in major British magazines and newspapers that, as of the time of this writing (2013), it has yet to occur.
[121] Corelli Barnett, The Audit of War: The Illusion and the Reality of Britain as a Great Power. (London: Macmillan, 1986). Barnett's tome is a book-length indictment of the British technological education system. This book was widely read by senior civil servants in the Thatcher administration and considered to be quite influential with regard to related public policy.

applied science."[122] One critic of British education said, "The [British] education system is held uniquely and exclusively responsible both for the low standards of its products and for their unreadiness for the working conditions of contemporary industrial society."[123] A commenter in the influential Opinion column of *The Mail on Sunday,* stated:

> This country doesn't need more academics or top civil servants. It needs better educated white and blue collar workers. It needs people who go into industry from choice, not as a second-best option. We need, in short, a totally different kind of work force—modern, educated and sophisticated. There's nothing wrong with the British people. It's our institutions like our universities that are letting us down.

Peter Wilby, Educational Correspondent for *The Independent*, wrote the following:

> Schools are not producing youngsters with the desire or qualifications required to undertake engineering and technology courses. When the government provided extra money for these subjects in 1984 and 1985, hundreds of places went begging. Eighteen of the 29 polytechnics which got the extra funds fell below their recruitment targets, some by as much as 35%. Two had to close their courses.[124]

In the face of statistics such as those shown above, one question naturally arises. If the British government of the day (1980's) saw engineering and technology training as sufficiently important to provide considerable additional funding, why were British students so uninterested in taking up the positions on offer? What would potential engineering and technology students find so off-putting about entering these fields of study?

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[122] Elbaum and Lazonick, "Decline of British Economy," p. 572.
[123] Margaret Mathieson and Gerald Bernbaum, "The British Disease: A British Tradition?" British Journal of Educational Studies, Vol.36, No. 2 (July 1988), pp. 126-174. The authors argue that technical education has been held in contempt by a British educational establishment made of people whose senior members invariably come from an academic background. Such people, they believe, generally hold an anti-scientific worldview and are ambivalent at best about scientific progress and technological advance.
[124] Ibid., p. 131, quoting Wilby's article in *The Sunday Times* of 25 May 1986.

The answer appears to be that students bright enough to successfully undertake studies in these fields were also bright enough to understand that they were embarking on an educational course which would relegate them permanently to "boffin" status. This term, similar to the modern-day term "nerd," is British slang for a technically educated person. It has moderately pejorative connotations for the British public.[125] However, those engaged in the professions to which this term would be applied understood exactly how such social status would preclude their advancing to management level. As F.M.L Thompson noted, "[Lack of upward mobility for technical personnel] was symptomatic of one of the failings of British industry since the First World War, that technicians, even university-educated technicians, were regarded as useful, especially for research in science-based industries, but not of managerial caliber."[126] University students realized that as far as British industry was concerned, becoming an engineer meant being "pigeonholed" for an entire career with no avenues for further advance.[127]

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[125] Jenny Rohn, "Who Are You Calling a Boffin?" Guardian (Manchester), 24 September 2010. Ms. Rohn goes to great lengths in an effort to dispel what she admits is a long-standing stereotype of technically educated people. She is trying to overcome a public image of "boffins" she sees as "befuddled, bespectacled, bad-hair-day (or no-hair-day) man, socially inept but somewhat cuddly (think Doc in "Back to the Future"); and there is the more sinister iteration: the equally dishevelled but cold, arrogant and/or mad male meddler, bent on no good (think Rotwang in "Metropolis")." That this perception is still a matter of concern to the technical community in egalitarian, inclusive 21st Century Britain is indicative of the depth and strength of its influence.

[126] F.M.L. Thompson, Gentrification and the Enterprise Culture. (Oxford: Oxford University Press, 2001), p. 134, 139. Thompson's work aims to rebut the claims of writers such as Barnett and Martin Wiener (English Culture and the Decline of the Industrial Spirit.) (Cambridge: Cambridge University Press, 1981)) who charge British upper-class culture with being antipathetic to business interests. Thompson's book attempts to exonerate the major vectors of that culture, the public school system and Oxbridge, from blame for Britain's postwar economic decline. However, even Thompson's counterargument admits that there is clearly some justification for the arguments posed by Barnett and Wiener, as shown by the following statement: "It could be that at this point, roughly between 1950 and 1980, the British universities failed to succor industry as well as they might have done, and that the failure was due to the predominantly anti-vocational, Newmanite prejudices of the university establishment, attitudes closely paralleled by the technological and pure science, non-managerial values of university engineers and natural scientists." To an outside observer, Barnett, Wiener and Thompson all agree a problem exists with regard to British technological education. Their differences arise in assessing magnitude and determining culpability.

[127] Oral interview with Mr. R. J. Sutherland, Deputy Project Manager, Pacific Drilling Corporation, 27 December 2012. In his comments, Mr. Sutherland used the term "pigeonholed." He remarked that from his 2002 class of oil and gas engineering graduates from Robert Gordon University in Aberdeen, only a

The marginal social status of technical personnel did not begin with World War I. Kipling's "McAndrew's Hymn," composed in 1893 and the only poem he ever wrote about a chief marine engineer, contains the following verse:

> Then, at the last, we'll get to port an' hoist their baggage clear—
> The passengers wi' gloves and canes—an' this is what I'll hear:
> "Well, thank ye for a pleasant voyage. The tender's coming now."
> While I go testing follower-bolts an' watch the skipper bow.
> They've words for everyone but me—shake hands with half the crew.
> Except the dour Scots engineer, the man they never knew.[128]

The chief engineer of a vessel is the senior and most important technical officer aboard a ship. In rank he is second only to the captain. Moreover, in all but cases involving imminent life or death, the captain must follow the chief engineer's advice on technical issues or risk cashiering and formal legal charges by an admiralty court. It should also be noted that at this time, due to the relatively recent introduction of steam propulsion, chief engineers were considerably less common and more valuable to shipping companies than captains. Despite this novelty and the importance of the position given how critical steam navigation was to Britain's far-flung empire, Kipling makes clear the fact that it received little respect from civilian passengers.[129]

There has been serious criticism of Britain's technology education system for more than 100 years. A long line of critics has included, among the most recent, Barnett, Martin Wiener, Sidney Pollard, Monty Finniston, Sir Keith Joseph and a host of UK Government reports. However, it is very clear the system's would-be reformers have

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handful, less than 10 per cent, remained in the U.K. to work despite the robust U.K. oil and gas industry. Mr. Sutherland attributed this exodus to foreign companies and postings offering greater opportunities for career advancement.

[128] Rudyard Kipling, "McAndrew's Hymn," Rudyard Kipling's Verse, Definitive Edition. (New York: Doubleday and Co., 1940), pp. 120-126.

[129] Ibid., pp. 128-134. Kipling makes another reference to this in "The 'Mary Gloster'." Sir Anthony Gloster, head of the Red Ox shipping line and a man who had sailed as captain with McAndrew, notes that McAndrew was his oldest friend, but that he had never asked him to dinner.

failed to make lasting improvements in the system. With regard to the reformers, it has been said that "their failure stands as a monument to the outstanding success of the British education system in embodying and perpetuating the values of British society's dominant elites."[130]

British authors with views as divergent as Kipling and Orwell agreed on one thing at least: the elites running the British governmental bureaucracy had little regard for those involved in "trade" and considered them socially inferior to the Civil Service.[131] Given that technical knowledge, accomplishment and practical application was most generally considered part of "trade," those elites simply did not value it very highly, particularly when it was part of the private sector.[132] Consequently, many bright, talented and enterprising students[133], who might elsewhere have become engineers, simply never even considered the idea because of engineering's devalued standing in British society.[134] In this educational area so important to modern shipbuilding, the differences between Korea and Britain could not have been more distinct.

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[130] Mathieson and Bernbaum, "British Disease," p. 127.

[131] George Orwell, "Rudyard Kipling," A Collection of Essays (1946; Orlando, Harvest, 1970), p. 119. Also see Kipling's "The 'Mary Gloster'," where Sir Anthony Gloster, on his deathbed, speaks to "Dickie," the effeminate son he clearly detests. Gloster lists the inheritance he can expect: "three 'undred thousand, in trust and the interest paid. I wouldn't give it you, Dickie—you see, I made it in trade. You're saved from soiling your fingers…."

[132] Kipling's slighting references to "box-wallahs" and Orwell's juxtaposition of rude, arrogant philistine Lieutenant Verrall with the humane teak merchant John Flory in Burmese Days are good examples of what Orwell referred to as "the outlook…of the salaried bureaucrat who despises the "box-wallah."

[133] Colton, "Staying Afloat," p. 1. Colton attended Radley, a British public school which he states, "was not used to its bright young men doing anything other than going on to either Oxford or Cambridge." He notes that, when discussing careers with the master responsible for careers guidance, it was clear that "a technical career of any kind would never have occurred to him; manufacturing was simply not something that one did."

[134] Paul Scott, in The Jewel in the Crown (London: William Heinemann, 1966), A Division of the Spoils (London: William Heinemann, 1975) and in Staying On (Chicago: University of Chicago Press, 1977), several times refers to English technical personnel in India. The "technicians" are always described in such a way as to draw a clear delineation between them and the type of university-educated, public-school "gentlemen" who used to govern the Raj. In one reference Scott refers to the technical personnel as "beefy-looking fellows in shorts and shirts. Their shirts were black with sweat. They were drinking beer from the bottle." One of Scott's characters, an Anglicized Indian lawyer named Srinivasan, notes that "So many of your present-day [British technical] experts are not what

DOING THINGS THE OLD WAY: BRITISH SHIPBUILDING AND POSTWAR TECHNOLOGICAL CHANGE

SHIPBUILDING IN THE 1950'S AND 1960'S: BRITAIN MISSES THE BOAT

While Britain's relative disdain for engineering and technology contained the seeds of future industrial problems, in the decade following World War II all was well. Shipbuilding went through an incredible boom in the first thirty years of the postwar era. Not only was it necessary to replace all the wartime tonnage losses, a considerable amount in itself, but international seaborne trade also concurrently underwent an unprecedented expansion. As Table 3 shows, shipbuilding tonnage delivered worldwide went from 1,880,000 tons in 1947 to 27,532,000 tons in 1977. However, the British percentage of that delivered tonnage declined from 50.2 per cent in 1947 to 3.7 per cent in 1977. Therefore, in the midst of a vast increase in shipbuilding worldwide, British shipbuilding output remained stagnant. However, even the absolute amount of delivered British tonnage dropped off after 1978. Britain was the only leading shipbuilding country which achieved no growth in the period 1950-1977, a period which constituted the largest shipbuilding boom in history to that time.[135] While undeniably true, this failure to grow appears counterintuitive given that British shipbuilding had for so long been the world's leader in the field. The reasons for this failure will now be examined.

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members of the [Mayapore Gymkhana] club of twenty years ago would have called gentlemen, are they? They are what the English ladies of Mayapore would have called BOR types? British Other Rank?" He also remarks that "in those days, you know, the commercial people were always looked down upon as the lowest form of Anglo-Indian life." The final and most egregious example comes in the interview between Stubbs, the middle-class, bigoted and openly racist Technical Training Manager for the British-Indian Electrical Company and Hari Kumar, the Chillingborough-educated Indian. In pointing out the obvious class differences between the two groups of people and portraying the technical personnel as having more plebeian behavior, Scott's descriptions provide a good barometer of the attitude of academically educated Britons about those who worked in technical fields.

[135] Brian W. Hogwood, Government and Shipbuilding: The Politics of Industrial Change. (Westmead: Saxon House, 1979), p. 24.

In the immediate post-World War II era Britain was one of the few countries left with intact capacity for building ships and its shipyards garnered a sizable amount of world demand. This was fortunate for Britain given the nation's serious balance of payments deficit and desperate need to increase exports to earn foreign currency. However, Britain was not alone in her parlous postwar economic straits and many of her industrialized prewar competitors also saw an opportunity for economic revival through shipbuilding. Sweden, France and the Netherlands in Europe, and Japan in Asia, were quick off the mark, with the Japanese particularly aided by the large American investment in Japanese manufacturing caused by the 1950-1953 Korean War.

The West Germans were allowed to restart their shipbuilding industry in 1950 and also soon began making excellent progress. By 1953 they lagged only Britain in worldwide shipbuilding. However, as Table 4 below shows, by 1956 the Japanese had overtaken Britain's shipbuilding tonnage totals and were rapidly increasing their lead over the field. [136] In that year Japan slightly more than doubled its previous year's output, from 829,000 launched tons to 1,746,000 launched tons. Continuing their unprecedentedly explosive growth, the Japanese doubled British output by 1962 and by 1965 Japanese-launched tonnage was almost 500% of the British tonnage launched. In the late 1950's and early 1960's Japan and Germany were clearly Britain's most competitive rivals in the world shipbuilding industry despite, until 1949, having been restricted in the size of vessels they had been allowed to construct.[137]

[136] Tim Colton, LaVar Huntzinger. A Brief History of Shipbuilding In Recent Times. (Alexandria, VA.: Center for Naval Analysis, 2002), p. 7. Colton and Huntzinger were using statistics provided by Lloyd's Register of Shipping. taken from Appendix H of the Shipbuilding Inquiry Committee Report (Geddes Report)
[137] Lorenz, "Decline," pp. 82-84.

Table 3: BRITAIN'S SHARE OF WORLD SHIPBUILDING TONNAGE

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World and U.K. Delivered Tonnage and U.K Market Share 1947-1979			
Year Delivered	Tonnage Delivered World (000 grt.)	Tonnage Delivered U.K. (000 grt.)	U.K. Market Share (%)
1947	1,880	944	50.2
1948	2,482	1,213	48.9
1949	3,114	1,353	43.4
1950	3,254	1,389	42.7
1951	3,557	1,340	37.7
1952	4,211	1,264	30
1953	4,938	1,250	25.3
1954	5,450	1,496	27.4
1955	4,967	1,322	26.6
1956	6,291	1,457	23.2
1957	8,117	1,421	17.5
1958	9,059	1,464	16.2
1959	8,697	1,383	15.9
1960	8,382	1,298	15.5
1961	8,058	1,382	17.2
1962	8,182	1,016	12.4
1963	9,028	1,096	12.1
1964	9,724	808	8.3
1965	11,763	1,282	10.9
1966	14,105	1,074	7.6
1967	15,157	1,188	7.8
1968	16,845	1,047	6.2
1969	18,739	828	4.4
1970	20,980	1,327	6.3
1971	24,388	1,233	5.1
1972	26,749	1,197	4.5
1973	30,409	1,067	3.5
1974	33,541	1,198	3.6
1975	34,203	1,170	3.4
1976	33,922	1,500	4.4
1977	27,532	1,020	3.7
1978	18,194	1,133	6.2
1979	14,289	691	4.8

What is most striking is that while the world caught up to and surpassed British shipbuilders, the British did not really begin to even formally recognize that changes were necessary until 1959. It was in that year the British Ministry of Transport became responsible for shipbuilding in Britain, this responsibility being transferred to it from the British Admiralty.[139] Over the next fourteen years, as Britain's position in

[138] Ibid., p. 23. Hogwood is using statistics taken from the 1966 Shipbuilding Inquiry Report (Geddes Report), p. 185; "British Shipbuilding 1972" (Booz-Allen Hamilton Report), p. 91, and British Shipping Statistics 1976/77.

[139] Hogwood, "Government and Shipbuilding," p. 242-244. Hogwood argues that the British Government's rationale for making this change "represented a hangover from the days of the symbiotic relationship between British shipping and shipbuilding…and a failure to diagnose shipbuilding's problem as a failure to compete in world markets rather than to hang on to the coat tails of the British shipping industry."

world shipbuilding steadily declined and British governments became increasingly concerned, there would be five major reports on shipbuilding from either Government or the shipbuilding industry commissioned and delivered.

Table 4: DELIVERED SHIPBUILDING TONNAGE COMPARISON FOR LARGEST WORLD PRODUCERS[140]

Year	United Kingdom				Japan				Germany			
	A	B	C	D	A	B	C	D	A	B	C	D
1953	1,317	952	364	27.7	557	354	203	33.8	818	454	364	44.5
1954	1,409	927	482	34.2	413	271	142	34.4	963	442	521	54.1
1955	1,474	935	539	36.6	829	246	583	70.3	929	525	404	43.4
1956	1,383	949	434	31.4	1,746	504	1,242	71.1	1,000	379	621	62.1
1957	1,414	1,153	261	18.5	2,433	920	1,513	62.2	1,231	453	778	63.2
1958	1,402	1,064	338	24.1	2,067	810	1,257	60.8	1,429	569	860	60.2
1959	1,373	1,257	116	8.4	1,723	725	998	57.9	1,202	356	846	70.4
1960	1,331	1,185	146	11.0	1,732	808	924	53.3	1,092	308	784	71.8
1961	1,192	911	281	23.6	1,799	1,051	748	41.6	962	420	542	56.3
1962	1,073	908	165	15.4	2,183	1,306	877	40.2	1,010	326	684	67.7
1963	928	644	284	30.6	2,367	870	1,497	63.2	971	327	644	66.3
1964	1,043	894	149	14.3	4,085	1,364	2,721	66.6	890	302	588	66.1

A: Total Tonnage Launched (‘000 gross tons)
B: Launchings for Home Registration (‘000 gross tons)
C: Launchings for Export (‘000 gross tons)
D: Export Launchings as Proportion of Total (‘000 gross tons)

These were the Department of Scientific and Industrial Research (DSIR) Report of December 1960, the Shipbuilding Advisory Committee (SAC) Report of April 1961, The “Productivity in Shipbuilding” (Patton) Report of March 1962, the Shipbuilding Inquiry Committee (Geddes) Report of March 1966 and the British Shipbuilding 1972

[140] Geddes Report, Appendix “H,” pp. 180-181. Figures adapted from “Tonnage Launched in Principal Shipbuilding Countries Showing Proportion for Home and Overseas Registration” graph.

Report of February 1973 from Booz, Allen and Hamilton. There would also be several minor ones delivered such as the "Shipbuilding Orders Placed Abroad by British Shipowners" Report of 1961 by Peat, Marwick and Mitchell and the Hill, Samuel Report, "Shipbuilding on the Upper Clyde," issued in 1972.[141]

This clear documentary trail tracing British shipbuilding's decline from world leadership into global irrelevance shows that both British governments and shipbuilders eventually grasped exactly what was causing it. However, even a clear knowledge of the causes for their decline did not enable them to halt or reverse it. Structural and historic reasons precluded the British from taking the drastic actions necessary to make their shipbuilding industry competitive with either its established rivals or the newly industrializing countries such as South Korea, Brazil and Taiwan. Obtaining that understanding was not helped by thirteen transfers of governmental responsibility for shipbuilding in the years between 1959 and 1977, as shown by Table 5.[142] While rapid shifting of responsibility for shipbuilding within government departments made official responses somewhat more disorganized than they otherwise might have been, the underlying issues remained the same.

[141] These would be the Peat, Marwick, Mitchell Report on ship purchase credit facilities and the Hill Samuel Report concerning the economic feasibility of government aid to Govan Shipbuilders. Peat, Marwick and Mitchell found that British shipowners were very unhappy with both the cost of British ships and the general inability of British shipyards to complete a vessel by the scheduled delivery date. The Hill Samuel Report looked into the economic viability of Govan Shipbuilding and found it unsound as a commercial venture.

[142] Hogwood, "Government and Shipbuilding" p. 252. Hogwood, whose study of the matter remains the seminal work on the issue, stated that his research showed that the changed responsibilities for the industry came about due to "the need [for Government] to achieve acceptable [departmental] workloads rather than attempts to improve coordination of policy." He concludes that "changes in responsibility for shipbuilding…have, if anything, reduced the government's ability to deal with the industry." One must also suspect that within the permanent civil service there may well have been a recurring element of wishing to hand the responsibility for shipbuilding's seemingly intractable problems on to someone else.

Table 5: TRANSFERS OF BRITISH GOVERNMENTAL SHIPBUILDING INDUSTRY RESPONSIBILITY[143]

Date of Transfer	Dispatching Group	Receiving Group (Major)	Receiving Group (Minor)
November 1959	Admiralty	Ministry of Transport	Shipbuilding and Repair Group
1960	Ministry of Transport	Ministry of Transport	Shipbuilding, Ports and Shipping Group
1961	Ministry of Transport	Ministry of Transport	Shipbuilding and General Group
1963	Ministry of Transport	Ministry of Transport	Shipping Policy and Shipbuilding Group
1964	Ministry of Transport	Board of Trade	Engineering Industries Division
1965/6	Board of Trade	Board of Trade	Division 4
Nov. 1966	Board of Trade	Ministry of Technology	Shipbuilding, Electrical Engineering and Chemical Plant Division
March 1967	Ministry of Technology	Ministry of Technology	Shipbuilding Industry Board
October 1970	Ministry of Technology	Department of Trade and Industry	None
Nov. /Dec. 1971	Department of Trade and Industry	Department of Trade and Industry	Shipbuilding Policy Division
March 1972	Department of Trade and Industry	Department of Trade and Industry	Industrial Development Executive
June 1974	Department of Trade and Industry	Department of Industry	None
July 1977	Department of Industry	British Shipbuilders, Inc.	None

GOVERNMENT AND BUSINESS RESPONSES TO BRITISH SHIPBUILDING'S DECLINE

To be able to see what South Korea did differently than Britain in dealing with its shipbuilding industry, some background for Britain's earlier actions must be provided. The decline of British shipbuilding in the post-World War II era arose from the confluence of many factors, history not least among them. Earlier in this paper it is clearly shown that of the world's major shipbuilding countries Britain alone missed the chance to expand its shipbuilding industry during the long postwar boom from 1945 to 1975. There is an obvious question to be asked: why did British shipbuilders,

[143] Ibid., p. 240.

the world industry leaders after the war, fail to seize a larger share of this tremendously increased worldwide shipping demand? The majority of the explanation can be attributed to two major factors: the institutional memory of the period after the First World War and the fragmented nature of the British shipbuilding industry.

First, it needs to be remembered what happened to British shipbuilding after the First World War. British shipbuilding capacity had expanded both before and during the war. In 1914 there were a total of 450 berths in Britain for the construction of seagoing vessels. By the early 1920's there were 650 berths.[144] Once the war ended in 1918, a frantic but short-lived boom began which lasted until 1921 as British and other shipowners replaced the tonnage lost during the war.[145] During that halcyon period, many shipbuilding firms came to believe there was a long period of robust trade ahead and began to invest large amounts of capital in facilities expansion. To cite just one example, Harland and Wolff planned major new expansions at their Belfast, Govan and Greenock works.[146]

[144] Johnman and Murphy, "British Shipbuilding," p. 12. They also cite statistics from the Tyne and Wear that show the combined capacity of the shipbuilding firms on that river as having increased from 1 million gross tons in 1906 to 1.8 million gross tons in 1918.

[145] Ibid., p. 16. Just how frantic the boom was is shown by contrasting the building costs of a 7,500 deadweight ton steamer from 1914 until 1939. See the below table.

Year	Cost (in £)	Year	Cost (in £)
1914 (Baseline)	54,375	1929	67,250
1920	225,000	1930	67,750
1921	97,500	1931	66,938
1922	67,500	1932	63,094
1923	72,188	1933	62,344
1924	68,000	1934	63,884
1925	60,000	1935	65,594
1926	64,500	1936	72,000
1927	66,000	1937	100,000
1928	65,500	1938	108,000
		1939	100,000

[146] Ibid., p. 14.

The boom and consequent expansion plans were unsustainable for two major reasons, both due to Britain's extraordinary effort in World War I. First, British shipping companies and shipbuilders largely exited from international commercial shipping and shipbuilding during the war. Prior to the war, British shipping firms had been very active in the tramp trading sector of worldwide maritime commerce. When the British Government needed those ships for wartime use in carrying supplies and munitions, British firms, as required by the Defense of the Realm Acts, tendered them as requested for war needs. The foreign customers of these British shipping firms, finding their British shipping firms now unable to provide transport, then found other carriers for their products. Once the war was over and the British shipping firms sought to reacquire their former trade, they found their positions had been filled by shipping companies from other nations whose vessels had not been required for wartime use. As an example, British shipping companies trying to regain their pre-World War I Asia trade found that they had been replaced by American and Japanese shipping lines that had not been involved in wartime service and who now had no intention of ceding the business.[147]

Second, this decline in British shipping business posed a serious problem for British shipbuilders in light of the fact that Britain's shipowners almost invariably placed orders with them. When Britain's shipping lines found themselves with less work, and thus needing fewer vessels in the post-World War I era, British shipbuilders—and their newly-expanded facilities--found themselves with much less work also. British shipbuilders found they had the same problem that British shipping firms did with regard to regaining export market share lost during the war. Forced to find alternative

[147] Ibid., p. 12.

suppliers when presented with British inability to complete, or even accept, new shipbuilding orders during the war, foreign firms discovered that much of the world's new shipbuilding tonnage capacity was government-subsidized and therefore willing to accept below-market prices for new construction. The number of foreign shipyards had increased dramatically during the war. There was twice as much world shipbuilding capacity after World War I as there had been prior to its outbreak. Much of this new shipbuilding capacity was in countries who fully intended to protect their nascent industries until they could compete internationally.[148] Britain, as the world's primary shipbuilder prior to the war, was of course worst hit by this additional capacity and its accompanying protection.[149] Britain's shipbuilders were soon forced to realize that much of their previous custom was now lost permanently. Consequently, once the boom was over, British shipbuilders found both their domestic and foreign orders deeply reduced.

When freight rates collapsed at the end of 1920, the order logs of British shipyards received a tremendous blow. According to Lloyd's Register of Shipping, by April 1921 almost 850,000 gross tons of orders had either been delayed or cancelled.[150] Most of those delayed or cancelled orders would never be built. The predicted and widely expected expansion of world trade after World War I did not occur. Instead, the international mercantile fleet grew barely 8 million gross tons between 1923 and 1938, from 62 million gross tons to approximately 70 million gross tons, an increase of less than one percent per year. The British shipbuilding industry as it existed at the

[148] Richard T. Harrison, Industrial Organisation and Changing Technology in UK Shipbuilding. (Aldershot: Avebury Publishing Co., 1990), p. 53.
[149] Lorenz, "Decline," p. 8. Lorenz notes that "direct subsidization of shipbuilders was not common. Subsidization was primarily indirect through support to shipping companies. The most common forms of support to owners were postal subventions and direct operating subsidies tied to ship construction in the home country."
[150] Johnman and Murphy, "British Shipbuilding," p. 17.

end of World War I could have supplied the entire worldwide interwar growth from its own resources.[151] Consequently, the interwar period between 1921 and 1937 turned out to be a massive bust as far as British shipbuilding was concerned.

Because of this stultification, "there was a veritable blizzard of [shipyard] closures in the 1920's."[152] Many of Britain's shipyards went bankrupt and were liquidated while others found themselves slipping perilously close to receivership.[153] The statistics show that 37 shipbuilders occupying 45 sites failed in the 1920's while 22 more with 38 sites closed their doors in the 1930's. The 1930's closures, however, represented a much larger diminution of shipbuilding capacity in that while 206 berths and 389,500 tons were lost in the 1920's, 216 berths and 1,411,500 tons of capacity disappeared in the 1930's.[154] By any measure it was a tremendous loss of potentially productive industrial plant as well as a human tragedy given the large increase in unemployment accompanying this rationalization.

When the British Government was asked to intervene by the industry, it did little more than provide guaranteed shipbuilding loans for qualified customers. Moreover, its ratification of the 1922 Washington and 1930 London Naval Treaties placed major limitations on the sizes and numbers of naval vessels Britain could build. This, along with Whitehall's adoption of the "ten-year rule" positing that there would be no major

[151] According to the *Lloyd's Register of Shipping*, there was 2.25 million gross tons of shipping under construction in the United Kingdom in the first quarter of June 1919.
[152] Ibid., p. 25.
[153] The following shipyards closed on the Clyde between 1921 and 1929: Chalmers and Co., Campbeltown Shipbuilding Co., Ross and Marshall, Dunlop Bremner, Murdoch and Murray, Caird and Co., John Fullerton and Co., Clyde Shipbuilding Co. (Castle Yard), and Ailsa Shipbuilding. On the Tyne, Northumberland Shipbuilding Co., Eltringham's, Rennoldson's, Hepple's, Wood and Skinner, Newcastle Shipbuilding Co., Dobson's, and Tyne Iron Shipbuilders all failed. Armstrong-Whitworth was dismantled and reorganized with its shipbuilding concerns taken over by Vickers. On the Wear, Harkess, Raylton Dixon, Irvine's, Ropner's, Richardson-Duck, Osbourne, Graham and Co., Sunderland Shipbuilding, and Blumers were taken into receivership.
[154] Todd, "The World Shipbuilding Industry," p. 122.

war for at least ten years, meant there was little help forthcoming from naval construction for the beleaguered British shipbuilding industry. The industry was, in effect, left to "sink or swim" on its own.

For all British shipbuilders, the period from 1921 to 1937 was a time of great fear and worry. Only when Britain began rearming in preparation for World War II did the gloom pervading the industry begin to lift. Those firms which survived the interwar depression learned some very serious lessons from it. One of the most salient was that postwar booms were short-lived and not to be trusted. As one British shipbuilding trade publication put it in 1954,

> If the 'bulls' are right, and the present strength of the freight market develops into what may be described as a 'boom' next year, and if it continues for any length of time, owners will undoubtedly become more interested in the possibility of acquiring additional vessels, whether secondhand or new. A resumption of ordering for dry-cargo ships will be welcomed by the shipyards; but it cannot be expected on any large scale, at least until the huge volume of war-built tonnage still in existence begins to show definite signs of breaking down or wearing out.[155]

It is interesting to note that this comment came after seven years of full postwar order books!

Another lesson was that those shipbuilding firms which overspent in capital investment were rash to do so and that shifting from older, more labor-intensive methods to more capital-intensive modern ones was not necessarily a way to become more profitable. The classic example of this was William Beardmore and Co. on the Clyde, which opened up a modern "state of the art" shipyard and engine

[155] Lorenz, "Decline," p. 83. Lorenz here is quoting the British shipbuilding trade publication "Shipping World and World Shipbuilding," 1 Dec. 1954, p. 581.

manufacturing plant in 1905. However, servicing the capital expenditure required for this step continually hindered yard profitability compared to older, less-modernized yards and eventually played a large part in its 1930 demise.[156]

The problem was that in Britain's staple industries like shipbuilding where there existed both considerable excess capacity and cutthroat competition, a producer who had long since written down his capital costs was always ready to "ruin the market" for modernizing competitors who were endeavoring to increase productivity through capital deepening.[157] The Geddes Report formally recognized this factor as a serious deterrent to investment in British shipbuilding, noting that "the yards which invested most [in labor-saving machinery and improvements] did not thereby become the most competitive. Their depreciation and overhead charges could not be readily recovered from the restricted business available when they could be outbidden by yards whose equipment was less up-to-date and less labour-saving. *Yard modernization was not of itself any guarantee of commercial efficiency*."[158] (Emphasis added).

The men who managed Britain's shipyards in the critical post-World War II period had been battered by war, depression, labor problems, supply problems, and foreign competition. Their entire working lives had been spent fighting a long retreat from worldwide shipbuilding supremacy. Those who had survived these forces were hard-bitten, skeptically practical men from Ulster, Scotland and the North who had learned through harsh and bitter experience that times were always tough. Their mindset was that any apparent improvement was bound to be short-lived, not to be trusted and

[156] J.R. Hume and M.S. Moss, Beardmore – The History of a Scottish Industrial Giant. (London: Heinemann, 1979), p. 88.
[157] Elbaum and Lazonick, "Decline of British Economy," p. 577.
[158] Geddes Report, p. 23.

needed to be used to build up reserves against the inevitable resumption of difficult conditions. As Parkinson described them,

> They were in the main an inbred lot of men who believed in the virtues of being brought up to the construction of ships in the old way; of learning by doing; of education being applied in technical institutions in preference to universities; of being able to control the men by sheer force of personality rather than by recognizing their aspirations; of being clannish and inward looking. It is these attitudes that stand out in all examinations of the shipyards in the post-Second World War period when those brought up in the slump were still in power.[159]

British shipbuilding in the 1950's needed men of vision to grasp the potential for a much brighter future. Unfortunately for Britain, such men were in short supply in the postwar shipbuilding industry.

The head of Britain's Shipbuilding Advisory Committee, Sir Graham Cunningham, realized in the late 1950's that Britain was beginning to badly underperform its worldwide shipbuilding competition. During 1959 he worked assiduously with shipowners, shipbuilders and union representatives to have a special subcommittee established with a mandate to investigate the problems in Britain's shipbuilding industry and recommend changes. Ultimately unsuccessful in this effort, he staged a very public resignation of his post on 16 March 1960. The inquiry he had endeavored to initiate was enthusiastically supported by two legs of the involved triumvirate: shipowners and union representatives. Shipbuilding managements, however, "wanted the question to be postponed further," with the clear intimation that they believed nothing need be done and the "postponement" should be effectively made

[159] Harrison, "Industrial Organization," p. 60, quoting Parkinson, J.R. "Shipbuilding," pp. 79-102

permanent.[160] Cunningham, in his letter of resignation to Mr. Ernest Marples, Minister of Transport, stated with reference to the shipbuilders' reasons for delay, "I consider these excuses so frustrating that to continue serving the industry as chairman would be fruitless."[161]

The open dissatisfaction expressed in Cunningham's letter of resignation embarrassed the Government, as he had intended, and it also achieved another of his goals. Transport Minister Marples accepted the necessity of establishing a special subcommittee of the Shipbuilding Advisory Committee to "review the prospects of, and the problems facing, the shipbuilding and shiprepairing industry and to make recommendations."[162] The formal report of the Shipbuilding Advisory Committee was delivered in April 1961.

The question naturally arises as to why British shipbuilders would have wished to postpone an inquiry into the problems facing British shipbuilding. It was clear from the decline in market share that something was amiss. Some of the industry's problems, such as British ships costing too much and delivery times taking too long, would have been considered embarrassing but arguably justifiable on the basis of better British quality and higher labor costs.[163] However, the airing of British shipbuilding's problems did not have to wait for the SAC Report. The Department of

[160] Hogwood, "Government and Shipbuilding," p. 44. A newspaper article cited below, "Strong Criticism of Shipbuilders." The Times (London): 6, states that the shipbuilding industry had previously refused to "sit down with the Ministry of Transport to examine its problems and to consider solutions."
[161] Ibid.
[162] Hansard, House of Commons Debates, 30 March 1960, cols. 1315-18.
[163] Higher labor costs would have been true with regard to Sweden; it would not have been with regard to Germany and Japan where labor costs were 20 per cent and 45 per cent cheaper, respectively. Quality would probably at this time be considered to be equivalent. "'Insufficient' Research into Shipbuilding Problems." The Times (London), 16 December 1960: 8.

Scientific and Industrial Research (DSIR) Report preceded it and caused a tremendous stir in Britain's shipbuilding industry.

THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH REPORT

The formal DSIR Report, entitled *Development Requirements of the Shipbuilding and Marine Engineering Industries*, was released in December 1960.[164] It found that "research and development in the field of shipbuilding and marine propulsion is insufficient in relation to the serious problems now facing the industry" and that "almost no organized research has hitherto been applied to the industry's production and management problems with the object of increasing the productivity of labour and capital and reducing costs."[165] However, much harsher criticisms were presented, and in a more direct manner, by a draft DSIR Report leaked to The Times and published by them in October 1960.[166] In that report, it was claimed that British shipbuilding productivity "has perhaps improved by 1 per cent since 1951, compared with 3½ per cent in manufacturing industry and with great advances by foreign shipyards."[167] The reasons behind this poor showing were supposedly "bad labour relations, demarcation problems, technical backwardness, poor quality of management, too many small firms, and lack of standardization in ships and parts."[168] The draft report also stated that, with reference to shipbuilding management quality, "production control is primitive, work-study non-existent, personnel management old-fashioned and there is too little contact with other industries whose techniques might benefit the yards."[169]

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[164] Ibid. This article described the formal DSIR report as "severely curtailed."
[165] Ibid.
[166] "Strong Criticism of Shipbuilders." The Times (London), 8 October 1960: 6.
[167] Ibid.
[168] Ibid. With regard to the demarcation problems, the draft report noted that there was little hope of an end to such problems until shipyard workers were given security of employment and their unions some financial inducement to cooperate.
[169] Ibid.

The formal DSIR Report was much less critical as the controversy over the draft report had stimulated shipbuilders to angrily rebut some of the stronger criticisms of the draft DSIR Report.[170] However, The Times noted that, compared to the draft version, "the published version has been purged not only of some admitted inaccuracies and questionable generalizations but also of a great deal of serious and valid criticism of the industry contained in the original, especially in the fields of management, productivity and labour relations."[171] One last item from the DSIR Report needs to be mentioned: British shipyards "had been slow to reorganize their production methods. Many had employed production engineering consultants to advise on production layouts and programmes, but the implementation of such advice had frequently resulted in labour upsets, which, in a period of full order books, may have made the industry reluctant to use the results."[172] This statement is just one of the early warnings concerning what would prove to be one of the greatest detriments to British shipbuilding competitiveness: labor activism. However, the DSIR Reports, draft and formal, deserve credit for clearly delineating in 1960 the problems that would eventually destroy British shipbuilding: high costs, late deliveries and bad labor relations.

THE SHIPBUILDING ADVISORY COMMITTEE REPORT: A WASTED OPPORTUNITY

The special subcommittee convened by the Ministry of Transport upon the resignation of Sir Graham Cunningham consisted of members from the Shipbuilding Conference, the Shipbuilding Employers' Federation, and the Confederation of

[170] "Strong Exception Taken to Shipbuilding Report." The Times (London), 10 October 1960: 3.
[171] "'Insufficient' Research into Shipbuilding Problems." The Times (London), 16 December 1960: 8. This article described the formal DSIR report as "severely curtailed."
[172] Ibid.

Shipbuilding and Engineering Unions. As mentioned earlier, the Ministry of Transport had not wished to initiate this special subcommittee and the report produced reflected that unwillingness. The special subcommittee met ten times in ten months to produce a report of fourteen pages in April 1961. Unsurprisingly enough, disagreements between the labor and management members of the subcommittee precluded emphatic agreement on anything except the idea that "the government should give the industry's need for credits the most sympathetic and urgent consideration." The report's other recommendations blandly called for urging improvements in management/trade union relations, increasing efficiency, considering the potential benefits from amalgamation among smaller shipyards, implementing a scrap and build scheme[173] and urging the government to increase the total of vessels it planned to order in the next several years. One prominent reviewer stated that "in terms of the non-implementation of its recommendations the SAC Report can be regarded as an almost complete failure."[174]

It is widely suspected that the special subcommittee chairman, Sir James Dunnett, who was the Permanent Secretary of the Board of Trade, "in his capacity as a civil servant advised the Minister [of the Board of Trade] to reject the advice he had given him in the report to which he [Dunnett] put his signature."[175] What the SAC special subcommittee and Report did was act as a shield to deflect criticism from the governing Conservatives about their lackluster response to shipbuilding's problems.

[173] This scheme at this time was generally unwanted by British ship owners and actively disliked by many of them, calling as it did for major expenditures at a time when it was not at all certain to said shipowners that there was any necessity for new tonnage. Hogwood notes that a similar scheme put into effect in the 1930's had a similar poor outcome. Such schemes work well in the face of rising demand.
[174] Hogwood, "Government and Shipbuilding," p. 56.
[175] Ibid., p. 52.

Other than that it left little other trace and British shipbuilding still continued its steady decline.

This was an excellent opportunity to solidly address the industry's problems while there was still time to make the necessary changes. Sir Graham Cunningham sacrificed his position to force this inquiry hoping that its findings might impel some badly needed corrective action. His resignation in protest of Government policy was an honorable act and in the best traditions of British politics. Unfortunately for both him and the British shipbuilding industry, it was done in vain. Cunningham was a man ahead of his time in recognizing that Britain's position was eroding rapidly and that something had to be done. In 1961 British shipbuilders were still remembering Britain's leadership of the industry a scant five years earlier. There had not yet been enough pain to make them willing to listen to men with Cunningham's message. It would take another five years of steady decline to provide that motivation.

THE PATTON REPORT

The Patton Report, which was actually titled *Productivity and Research in Shipbuilding: Report of the Main Committee under the Chairmanship of James Patton, O.B.E. to the Joint Industry Committee*, was commissioned by the Joint Industry Committee for Productivity in Shipbuilding, a part of the British Ship Research Association (BSRA). This 1962 shipbuilding industry-sponsored report "pinpointed the underdeveloped nature of managerial hierarchies in the industry as a serious weakness and recommended a more systematic approach to production control."[176] Greater in length and detail than any other report on British shipbuilding prior to the

[176] Lorenz, "Decline," p. 131.

Geddes Report, it was intended to serve as a guideline for modernization of the production practices utilized in British shipyards with the intent of bringing them up to a higher productivity level.

As an industry-sponsored document, it had both advantages and disadvantages. Among the advantages were that the specialists who produced the Report knew both their own industry and their foreign competition quite well. The Patton Report contained some very effective and practical suggestions on how to increase shipyard productivity, the adoption of which would have led to considerably more efficient output. British shipbuilders who read the Report agreed that its recommendations made good sense and implementing them would definitely streamline production and remove bottlenecks. The major disadvantage was that BSRA had no power to get shipyard managements to even open the Report, much less implement any of its conclusions. Moreover, it recommended changes that would impose costs which might not be able to be quickly recouped, always a sore point with shipbuilders everywhere and particularly Britain's seriously undercapitalized ones. Nevertheless, there was a great deal of useful information in it and the Geddes Report stated that "the influence of the Patton report on British shipbuilding technology has been strong."[177] The Patton Report is just more evidence that the technical and production advances taking place in Japanese, German and Swedish shipyards were generally known in Britain. British shipyards were not ignorant of their deficiencies; they just did not see the benefits of implementing new methods outweighing the twin costs of financial expenditure and likely labor unrest.

[177] Hogwood, "Government and Shipbuilding," p. 49, citing the Geddes Report.

THE GEDDES REPORT: BRITAIN FINALLY TRIES TO SAVE ITS SHIPBUILDING INDUSTRY

THE SHIPBUILDING INQUIRY COMMITTEE REPORT (Geddes Report)

In October 1964, the newly elected Labour Government decided that shipbuilding's problems had finally reached the point where they urgently demanded to be formally addressed. This decision came as no surprise since the "vast majority of shipbuilding yards lay within Labour parliamentary seats."[178] The decline in shipbuilding had obviously affected many Labour constituencies in Scotland and the North. It was only pragmatic politics for the Labour government to officially display its concern since the already bad situation for the government on both the commercial and political fronts in those areas promised to rapidly deteriorate.[179]

However, there was more to this effort than just mere politics. Only ten years earlier Britain had still led the world in this industry and even if Britain no longer "ruled the waves" in the post-World War II era, no British government wanted to see the industry vanish and British-built ships disappear completely from the world's oceans. Moreover, there was a deeper and darker concern underlying shipbuilding's decline, the question of how closely British shipbuilding's problems mirrored Britain's entire industrial establishment. As the Geddes Report so clearly stated in its Preamble, the problems in shipbuilding were not special in kind so much as in degree. The truly

[178] Johnman and Murphy, "British Shipbuilding," p. 159.
[179] J. Foster and C. Woolfson, "UCS Work-In," p. 108. In the political sphere, Foster and Woolfson point out that the Conservatives had been losing seats in Scotland since 1955. By 1972 they had lost approximately one-third of their original total. Labour, which had been the beneficiary of a disenchanted Scottish public's turn away from the Conservatives, started in 1964 to lose a significant percentage of their seats to the Scottish National Party.

trenchant question the Report asked was, "If Britain cannot stand on this front, where does she mean to stand?"[180]

The appointment of the Shipbuilding Inquiry Committee was Britain's most serious postwar endeavor to investigate and resolve the problems of British shipbuilding short of nationalizing the industry. It had the full support of both the Labour Government and the Conservative opposition. From its inception it was understood that any solutions the Committee might propose to shipbuilding's difficulties would be given great weight and held a high likelihood of implementation. From all accounts the Committee took its remit as a grave responsibility. Its members had been selected with considerable care in a deliberate effort to produce both a highly competent organization and one completely free from any suggestion of bias. The Committee clearly made a thorough and conscientious effort to understand the problems affecting the industry and the report it produced demonstrates that high level of engagement. It certainly shows the Committee understood the magnitude of the task facing Britain's shipbuilding industry in trying to once again become internationally competitive.

Table 6, which was presented in the Geddes Report, showed the manpower losses in the British shipbuilding industry between 1958 and 1963.[181] Britain had suffered a 32.3 per cent decline in shipbuilding employment in only five years. The decline was particularly acute in Scotland, where, between 1958 and 1966 ten Clyde shipyards had either ceased operations or merged with other yards.[182] Given that Scotland was

[180] Geddes Report, p. 11.
[181] Shipbuilding Inquiry Committee Report (Geddes Report), Cmnd. 2937, appendix E, p. 172. Employment number changes and percentage changes extrapolated from information in the cited chart.
[182] The ten yards were as follows. In 1958, J. and J. Hay in Kirkintilloch failed. It was the first Clyde shipyard to go under since 1936. In 1962, the North Yard of Ardrossan Dockyard Ltd. ceased operations. In 1963, George Brown and Co. Ltd., of Greenock, W. Denny and Bros. Ltd., of Dunbarton,

already suffering from higher unemployment than most of the rest of the U.K., the problems with Clyde shipbuilding registered even more acutely there.

Table 6: BRITISH EMPLOYMENT IN SHIPBUILDING, 1958-1963

Year	Operatives (New Construction)		Other than operatives (shipbuilding and shiprepairing)	Change in Actual Employment Numbers	Percentage of Decline from 1958
	Merchant	Naval			
1958	77,600	14,600	21,300	--	--
1959	80,100	13,600	21,100	+1,300	+1.145%
1960	71,800	12,200	21,100	-8400	-7.4%
1961	58,600	9,600	20,400	-24,900	-21.94%
1962	50,400	12,000	19,400	-31,700	-27.93%
1963	47,900	10,800	18,100	-36,700	-32.33%

Mr. Reay Geddes, the Managing Director of the Dunlop Rubber Company, was selected to chair the Shipbuilding Inquiry Committee. Geddes was chosen because he "was regarded as being a dynamic industrial leader" and "was interested in achieving productivity through enlightened labour relations."[183] The Committee's remit was to a) "establish what changes are necessary in organization, in the methods of production, and any other factors affecting costs to make the shipbuilding industry competitive in world markets; b) to establish what changes in organization and methods of production would reduce costs of large main engines to the lowest level; and c) to

Harland and Wolff 's Govan Shipyard, Blythswood Shipbuilding Co., Ltd., of Scotstoun, Simons Yard of Renfrew, Lobnitz Yard of Renfrew, and Fleming & Ferguson Ltd., Paisley, closed down. W. Hamilton and Co. in Port Glasgow merged with Lithgows' Shipyards. In 1966, Greenock Dockyard Co. Ltd of Greenock merged with Scott's Shipyard.

[183] Hogwood, "Government and Shipbuilding," p. 66. Hogwood notes that this interest in "enlightened labour relations" was particularly relevant to shipbuilding.

recommend what action should be taken by employers, trade unions and government, to bring about these changes."[184] Its recommendations were expected to be applicable to all shipyards normally employed in the construction of vessels equal to or greater than 5,000 gross tons in size.[185] Roy Mason, who was Minister of State at the Board of Trade and thus responsible for the shipbuilding industry, asked the Committee to complete its investigations and report within twelve months of its initiation on 2 February 1965. In the event, the Committee submitted its report to the Board of Trade on 24 February 1966.

GEDDES REPORT FINDINGS

It is generally accepted that the Committee's diligent work produced a serious, judiciously considered and valuable document. During its year of inquiry, its members visited and/or received representations from a host of organizations both in and away from the United Kingdom. Committee members visited all twenty-seven British shipyards[186] which would be affected by their recommendations as well as a representative number of overseas shipbuilding and manufacturing facilities.[187] They spoke and corresponded not only with shipbuilders and marine engine builders but also with shipowners, ship operators, union leaders, senior Government officials,[188]

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[184] Hansard, House of Commons Debates, 2 February 1965, cols. 685-7.
[185] Hogwood, "Government and Shipbuilding," p. 66.
[186] "Geddes Report Suggests £67m Loans to Streamline Shipyards." The Times (London), 25 March 1966: 7. The newspaper article mentions that Britain has 62 operating shipyards and implies that they would be included in the proposed groupings. It is somewhat misleading in that it does not mention the fact that Geddes Report findings were only intended to be applied to the twenty-seven largest shipyards, those building vessels of 5,000 gross tons or larger. These shipyards are listed in the Geddes Report in Appendix D, pp. 170-171.
[187] Members of the Committee traveled to Japan, Germany and Sweden to see the latest innovations in shipbuilding technology.
[188] Some or all Committee members made inquiries to the Board of Trade, the Export Credits Guarantee Department, the Ministry of Commerce for Northern Ireland, the Ministry of Defense, the Ministry of Health and Social Services, the Ministry of Labour, the Ministry of Technology, the National Physical Laboratory and the Scottish Office.

steel industry leaders, academicians, related professional associations and industry research bodies.[189]

Their investigations were conducted in both public and private meetings. This was intentional since the Committee truly wished to discover the industry's underlying problems and its members recognized that blunt truths sometimes could not be openly admitted in formal settings. Indeed, some of those private discussions were brutally frank and might have been legally actionable if spoken in public. However, their investigations did reveal a clear view of the reasons for the industry's decline while convincing the Committee that shipbuilding's problems were structural, multi-faceted and interlocking. The Committee completed their Report with guarded optimism but was absolutely honest when in the Report's Preamble they stated, "there is no one easy way in which [British shipbuilding] can become competitive."[190]

The Committee Report mentioned a long list of serious problems. Among them were the following:

- high vessel costs
- late delivery dates
- extremely poor labor relations
- obsolescent physical plant
- craft demarcation infighting
- weak management
- lack of strategic business planning
- short term outlook

[189] For the full listing, see Appendix B of the Geddes Report, pp. 166-167.
[190] Geddes Report, p.8.

- inadequate design and production planning
- insufficient engineering talent
- antiquated and inefficient marketing
- failure to control subcontractors
- financial mismanagement
- incomplete and deficient accounting and budgeting practice
- uncoordinated purchasing practice
- misapplication of skilled labor
- misdirected and inadequate technical research
- lack of specialization
- insufficient work measurement

Most of these faults the Committee believed could not be rectified within the current structure of the industry because of the relatively small sizes of Britain's shipbuilding firms. The economies of scale which could be practiced by large firms and which the Committee believed essential for British shipbuilding to be competitive in the world market simply were not possible for them. According to the Committee, their small size meant Britain's current shipbuilding firms had "insufficient influence with customers and suppliers."[191] Moreover, because they lacked sufficient resources they were severely constrained in their future planning and unable to look beyond the current, crisis-ridden short-term horizon. Consequently, in its conclusions and recommendations the Committee attempted to address what it saw as British shipbuilding's major problem: industry fragmentation.

[191] "Geddes Report Suggests £67m Loans to Streamline Shipyards." The Times (London), 25 March 1966: 7.

Elaborating on the point of "insufficient influence", they pointed out the following financial information in Table 7 comparing British shipbuilding with other British industries.[192] After providing this comparison with other well-known British industrial firms, the Report remarked that "the turnover of each of these individual concerns is larger, in some cases several times larger, than the combined sales of the twenty-seven yards concerned. Yet each of these yards is seeking to compete, unprotected, in conditions of acute international competition."[193] The Shipbuilding Inquiry Committee Report firmly established the rationale for its primary recommendation when it stated "it is, in our view, no accident that the leading foreign firms are those who attack the growing world market and operate on a large scale."[194]

It was a valid observation and one with which the Korean Government certainly later agreed. Korea, as a "late-industrializing" nation, had the luxury of benefiting from observing the errors made by those who had initially blazed the trail. The Korean Government's analysis of what was necessary for Korean industrialization to succeed concluded that company size and capitalization were critically important. Consequently, their industrial policy held the idea of building up "national champions" of industry as a core principle. President Park Chung Hee made his intentions in this direction very clear when he stated in 1971 that "every aspect of our [Korean] national economy, including its scale, should be enhanced to a level where it can be evaluated favorably on an international standard."[195] Korean shipbuilding firms such as Hyundai, Samsung, and Daewoo benefited greatly from the assistance provided as a result of this governmental stance. President Park was very well aware that when it

[192] Geddes Report, p. 14. Figures taken from "*The Times 300"* (The Times (London), 1965).
[193] Ibid. Chart adapted from figures provided in Geddes Report, Table 2 and associated data.
[194] Ibid., p. 9
[195] Park, Chung Hee, To Build A Nation (Washington D.C.: Acropolis Books, 1971), p. 199.

came to business, size mattered a great deal. It was no accident that his government had been pushing Korean businesses to increase growth since shortly after taking power in 1961.

However, when comparing Korea and Britain it must be recognized they operated very differently with regard to economic policy. In Britain one major political party had a sizable, possibly even a majority, segment that contended there should be no government economic policy and that the markets alone should dictate the allocation of capital and resources. In Korea, and particularly during the administration of President Park, there was never any doubt that there would be a government economic policy. The only question to be answered there concerned which companies would be its beneficiaries.[196]

Table 7: FINANCIAL TURNOVER FOR SELECTED BRITISH FIRMS

Industry	Turnover 1964-65 (£m)
Imperial Chemical Industries	720.2
British Motor Corporation	444.1
Guest, Keen and Nettlefold	338.1
Distillers Company	303.0
Courtaulds	227.7
Bowater Paper Corporation	171.2
British Shipbuilding (27 Largest Firms Combined)	**159 (ca. 1963)**

[196] The economic literature on this subject refers to a state such as Britain as a "regulatory state;" South Korea is often referred to as a "developmental state." The difference, which is addressed below, is primarily concerned with the existence of a national industrial policy.

Having spent a year analyzing an industry comprised of relatively small businesses unable to benefit from the economies of scale its overseas competitors enjoyed,[197] the Shipbuilding Inquiry Committee formally concluded that the most important action needed to halt British shipbuilding's decline was horizontal integration to achieve those economies of scale. Consequently, they proposed "concentrating most of the 62 yards into three or four big groups, two in north-east England and one or two on the Clyde."[198] By far the most sweeping of the Report's suggestions, this was a bold recommendation and not one easily implemented. However, it was economically logical, comparatively inexpensive and addressed an obvious problem. If shipyard grouping didn't guarantee a halt to the decline, it certainly looked like movement in the right direction.

The Committee Report recommended providing funds to assist in grouping shipbuilders according to regions and construction specialties since those grouped shipyards, as larger, centralized enterprises, would have that greater "influence with customers and suppliers" the Committee deemed vitally important. The Committee assumed the planned new shipbuilding aggregations would be able to attract stronger management, enjoy immediate cost reductions through combining design, drawing,

[197] Appendix P of the Geddes Report shows the percentage of tonnage launched in shipbuilding countries (Japan, Germany, Sweden, United Kingdom), by the size of the shipbuilding group constructing the tonnage. Japan had 83.7 percent of its tonnage built in yards constructing more than 100,000 tons per year, and only 8.8 percent of its tonnage built in yards of smaller size. Britain had 42.2 percent of its tonnage built in yards constructing more than 100,000 tons per year and 57.2 per cent of its tonnage built in yards of smaller size.

[198] "Geddes Report Suggests £67m Loans to Streamline Shipyards." The Times (London), 25 March 1966: 7. Although the Report was aimed at only the 27 British shipyards building vessels larger than 5,000 tons, The Times had consulted with other political sources who believed that it was quite likely some additional shipyards of smaller size would also be consolidated in the groupings suggested by the Report.

planning and purchasing offices, and provide a more flexible and effective use of the labor force.[199]

The Report envisaged having the shipbuilders on the Tyne, Wear and Tees Rivers in North-East England amalgamated into two groups, while the Clyde shipbuilders would also be amalgamated into two groups, one for the Upper Clyde and one for Clydebank. Harland and Wolff in Belfast was posited as comprising its own group due to its size as the U.K.'s biggest shipbuilding firm, its relative geographic isolation, its intent to specialize in construction of large vessels and Northern Ireland's unusual political situation. It should be noted here that even prior to the Geddes Report Harland and Wolff had received considerable sums in special financial assistance from the Government of Northern Ireland.[200] This was in large measure due to its position in the local economy as a major, extremely important employer during a time when Northern Ireland was rapidly losing jobs and investment due to a major upsurge in sectarian violence.[201]

The proposed grouping of yards with regard to construction specialties was suggested to be as follows:

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[199] Geddes Report, p. 90. The Report also noted the Committee's belief there was "real regional and 'river' loyalty and pride on which to build morale."

[200] Hogwood, "Government and Shipbuilding," p. 122. He notes that Harland and Wolff had been receiving subsidies from the Northern Ireland Government since World War II and that they had provided a loan of £3.5 million in 1966 to prevent the shipyard from going into receivership.

[201] There was serious concern in both Westminster and Stormont that if an important firm such as Harland and Wolff were allowed to collapse due to a lack of financial support from the British government, this would be taken as the beginning of an economic withdrawal by the mainland United Kingdom from Northern Ireland. Both governments feared that any indication of economic withdrawal would be taken as the precursor of a formal U.K political withdrawal from the Province. It was always assumed during Northern Ireland's "Troubles" that any such indication would make an already bad sectarian violence problem exponentially worse.

> S yards: Yards which would build the more **sophisticated ships** involving a large proportion of fitting-out work and possibly steel work of special quality. Examples of this type of ship are destroyers, frigates, passenger ships and the larger ferries.
>
> M yards: Yards building **multi-deck mixed cargo ships**. If there were two yards of this type in a group they might specialize in different sizes of ship.
>
> B yards: Yards building ships without 'tween decks: **bulk carriers and tankers**.[202] In a group with two such yards one might concentrate on the larger tankers while the other built bulk carriers for dry cargo and smaller tankers.[203]

The Committee recommended that each grouping have no more than one "S" yard but possibly two or more "M" and "B" yards. The final outcome of grouping was envisioned as combining four or five current shipbuilding firms, all within one hour's travelling distance, to create yards with approximately 1,500-2,000 men per "M" or "B" yard while "S" yards might employ up to 3,000 workers. The aggregate size of a group was expected to be approximately 8,000-10,000 workers with an annual production output of 400,000 to 500,000 gross tons per year.[204] Even at the lower output ranges the Report mentioned, the anticipated output was a minimum of 2 million gross tons per year. This rate of assumed production from five groups must be considered as surprisingly optimistic since it meant British tonnage output would approximately double. As Chart 1 shows, the total aggregate tonnage output of British shipbuilding in 1965 was only 1,282,000 tons.

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[202] "'Tween-decks" is a term generally referring to vessels that have additional decks between the keel and the upper deck of a vessel. Bulk carriers and tankers, in their cargo-carrying spaces, do not have such decks. With their cargo-carrying spaces making up the vast majority of the vessel, they are basically a linear assemblage of large steel boxes bounded by the ship's sides, upper deck and keel. Such vessels are the simplest types of ships to design and construct and are almost always the vessel types initially built by new entrants into the shipbuilding industry.
[203] Geddes Report, p. 88.
[204] Ibid., p. 89.

Judging from the anticipated output stated for the proposed groups, the Committee clearly believed that grouping would yield a great many advantages in efficiency and productivity not currently enjoyed by the industry. However, they were not completely sanguine about the issue. The Report recognized that "human problems will inevitably arise and these will range from top management to the newest employee."[205] They also stated that grouping would pose "many financial problems" and that "overhead and other costs may have to be incurred on which no early return can be expected."[206] This was a clear reference to their belief that costly training/retraining of existing workforces and the importation of expensive new talent into group managements would be required. Additionally, the Committee recognized that production facilities "will have to be rationalized" and this would inevitably "involve some disruption of production."[207] Grouping was not going to be achieved without overcoming some serious problems and the Report recognized that.

At bottom, however, the Committee firmly believed there was no other choice that would have any chance of making British shipbuilding a viable concern. They did not believe that the normal business procedures of "closure and take-over" would suffice to form the sizes of groups they deemed necessary in anything approaching a suitable timeframe. They also rejected the idea of just having the Government subsidize existing shipyards because they did not see the current state of the industry allowing such subsidies to be profitably spent. With reference to subsidization, the Report stated that "We see no hope of the shipbuilding industry becoming competitive on the world market in this way. British shipbuilders are not short of orders but the business

[205] Ibid., p. 91.
[206] Ibid., p. 92.
[207] Ibid.

they have booked is in general unprofitable."[208] Their final analysis of the subject stated that "the effort which is required to make the shipbuilding industry competitive cannot be achieved without grouping and complete merging of businesses, resulting as this should in unified direction and the most efficient use of resources of management, labour and equipment."[209] The Committee was absolutely correct in its conclusion that unified direction and efficient use of resources were desperately needed given the magnitude and variety of the problems facing the industry. Those problems will now be given closer examination.

PROBLEMS REVEALED BY THE GEDDES REPORT

First, Britain's shipbuilders were generally considered to be more costly than their competitors, and by an average of 20 per cent.[210] With shipping being an intensely competitive industry and shipowners being by necessity a notoriously parsimonious lot, this was a damning criticism.[211] The Shipbuilding Inquiry Committee received a number of reports from British shipowners who had experience of requesting tenders for construction from UK, European and Japanese yards. For the same ship, in many cases the cheapest British tender exceeded the cost of the highest Japanese tender and sometimes even the highest European tender.[212] Facing such serious price differentials the export market for British ships had dwindled to unprecedentedly low levels. More ominously, even British shipowners such as P & O and BP, with long histories of procurement from particular British shipbuilders and a pronounced preference for

[208] Ibid., p. 93.
[209] Ibid.
[210] Ibid., p. 48. Geddes claimed it was only 15 per cent but admitted that the public perception was 20 per cent. Given the costs incurred by other factors, including late deliveries, it may have been even more than 20 per cent.
[211] One of the comments often made about vessel owners by hard-pressed crews trying to run ships on sparse budgets was, "These guys throw nickels around like they're manhole covers."
[212] Johnman and Murphy, "British Shipbuilding," pp. 195-197.

"buying British," found themselves forced by business economics to begin ordering abroad.

To add to an already difficult problem, what the Committee found when they investigated this cost differential was that *even with higher received prices British shipyards were still not profitable.*[213] As the Report noted in a subchapter entitled, "Profitless Prosperity 1965," even those British shipyards which had sufficient work on their order books at the time found that "many of the orders now in hand will not be remunerative enough even to cover costs."[214]

Like most of the other difficulties with British shipbuilding, there was no easy solution to what was a complex and deeply interconnected problem. Breaking down the general cost structure for British shipyards showed that shipyard overheads, such as management, design, planning, purchasing and sales, constituted roughly 10 percent of costs. Shipyard labor costs accounted for between 15 and 20 percent, steel 15 to 20 percent, main engines 10 to 15 percent, other machinery 15 to 20 percent, and other hull materials and equipment roughly 20 percent.[215] Finding 20 percent to cut from these categories was never going to be an easy task as both shipyard labor and material/equipment vendors were already suffering from the downturn in British shipbuilding.

The Geddes Report's recommendations concerning shipyard grouping were, among other aims, intended to produce firms with sufficient size to wield major influence with material and equipment suppliers. The hope with regard to vendors/suppliers was

[213] Geddes Report, p. 44.
[214] Ibid., p. 26.
[215] Ibid., p. 48.

that the prospect of increased sales volume to a larger customer would induce them to provide at least somewhat cheaper prices. The Report accepted as given that shipyard grouping would produce economies of scale with regard to overhead costs for management, design, marketing and purchasing. Of course, even had shipyard grouping managed to eliminate shipyard overhead expenses entirely, it would still not have produced a sufficient cost reduction to bring British shipyards to cost parity with Japanese yards. That said, cost reduction had to start somewhere and this was one of the few aspects fully within the control of the yards themselves.

Second, late delivery dates were an incredibly difficult problem for British shipyards, particularly when compared to the Japanese competition.[216] The British already took longer to build vessels than their major shipbuilding competitors and to have late deliveries on top of that just made a bad situation worse.[217] Late delivery was a hydra-headed monster for the shipyards because there were so many factors that could disrupt delivery schedules and few of them were within the control of the yards themselves.

Late delivery is potentially a danger to all shipbuilders because of the difficulties of maintaining proper subcontractor/vendor control. Shipbuilding is a business where the builder assembles a great many pieces of discrete equipment into a coherent and

[216] Ibid., p. 29. The Report comments that "The Japanese have acquired an enviable reputation for delivery on time" while noting that "at present one of [British shipbuilding's] most serious problems is to provide speedy and reliable delivery."
[217] Ibid., p. 174. Appendix F of the Report is "Average Times Taken from Order to Completion in British Yards in Recent Years." For merchant ships, tankers took from 24 to 27 months to complete, bulk carriers took from 14 to 20 months to complete, and cargo liners took from 13 to 17 months to complete. By comparison, according to Johnman and Murphy, "British Shipbuilding," pp. 196-7, Japanese times for construction of cargo liners was roughly half of that in the U.K., while tankers built in Swedish yards took "six or seven months" compared to "twelve to sixteen months" in British yards. In general, British yards were taking nearly twice as long to build a vessel as their main international competitors.

integrated whole. If any one of the major parts of the vessel—special plating, castings, engines, electronics, shafting, rudders, anchors, propellers, winches, etc. are delayed in production or delivery, the entire vessel suffers from that delay.[218] Keeping close watch on the status of all the equipment required to complete a vessel is imperative but very challenging. What is required is sufficiently exact logistical control to insure exactly what is wanted is delivered to the right place at the right time, thus allowing the fulfillment of tight delivery schedules.[219] Since most of these items are not produced by the shipyard, the yard is at the mercy of its equipment vendors should those vendors fail to deliver orders as promised.

For the shipyard's purchasing department, which is charged with managing this issue, communicating with all the suppliers involved in equipment procurement about order status is like herding cats: a difficult and thankless task. Even in the second decade of the 21st Century, with all but instantaneous worldwide communication, procurement problems with vendor-supplied equipment are still the most common reason for late delivery of vessels. For the British shipbuilding industry of the 1960's, with its minimally manned purchasing departments struggling with much slower communications that were both cumbersome and expensive, this was a major problem that often had critical impact on delivery times.[220]

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[218] Geddes Report, p. 29. The Report noted that "delay in obtaining supplies" was often a problem.

[219] It should be noted here that most vessel equipment, and certainly every piece of major equipment, has to have a product certificate issued by the vessel's classification society. It is not at all uncommon to have more than 1000 product certificates for the equipment of a complex vessel. Testing required to issue this certificate is normally done at the equipment manufacturer. If this document isn't provided with the equipment, it generally means a great deal of extra cost and time is incurred at the shipyard while the testing required to issue the product certificate takes place. Another consideration is that sometimes storage space is at a premium, particularly climate-controlled storage space for such things as electronic components. Consequently, having equipment delivered too early when there is no available/suitable storage space can also pose problems.

[220] It should be noted here that one of the issues cutting into the profitability of all shipbuilding from the 1960's on was the tremendous expansion in the international regulations governing the construction and operation of seagoing vessels.

Late delivery also contributed greatly to the unprofitability of British shipyards because of a change in industry pricing practice initiated in the late 1950's and which gradually became standard throughout shipbuilding. This was the practice of fixed-cost pricing. Prior to the mid-1950's, most shipbuilding contracts were written on a cost-plus basis where there was general agreement between owner and builder about the vessel cost but with the final price not actually solidified until after delivery. This allowed the owners to make changes in the vessel right up to delivery and allowed the yards to include such changes in their charges.

This was acceptable when ordered vessels were more of a "one-off," individual transaction.[221] With the movement to standardization entailing long production runs where shipyards were building multiple vessels of exactly the same type for different owners, the need for that level of design flexibility all but disappeared. Moreover, owners needed a predictable delivery cost for their vessels since the banks providing the money for construction were becoming increasingly reluctant to fund projects with an unknown end price. Consequently, when vessel contracts changed to fixed-cost pricing the yards were faced with the necessity of delivering the vessel at the contractually agreed time or paying heavy delay penalties.[222] The British shipyards simply failed to manage this change well and it cost them dearly.[223]

[221] Geddes Report, p. 12. The Report notes that in the past it was quite common for individual shipping firms to have considerably different design requirements for their vessels, hence the idea of each order being a "one-off" construction arrangement.
[222] These penalties can be extremely steep. The author was involved in the construction of a vessel which had a contractually agreed delay fee, including liquidated damages, of USD 160,000 per day.
[223] This was particularly damaging when compared to their Japanese and Swedish competitors, each of which boasted a much better percentage of on-time deliveries.

There was one other major cost associated with late deliveries. This was the cost added by inflation. Inflation in the 1960's in Britain was bad, running at more than six per cent per annum; in the 1970's it was considerably worse. With inflation then running in double digits, increases in equipment and labor costs could quickly turn what was at signing a marginally profitable fixed-price contract into a major loss. It was due to inflation that the Report stated, "It is at present the level of profitability in the industry which jeopardizes its survival and not a shortage of orders. Indeed, while costs are rising fast an overlong order book may be a disadvantage."[224] This was a problem over which the shipyards had no control. They and the rest of British industry suffered greatly from it.

Next in importance in the litany of British shipbuilding's woes was its abysmal record of labor relations. The Report recognized this as an absolutely critical factor which played a very significant part in the two aforementioned problems with the industry, high costs and late deliveries. It actually stated, "We cannot emphasise too strongly that improvement in this field is one of the prime conditions of the survival of shipbuilding…" [225]

Shipyard management had a long list of complaints with their unions. Among them were

> …restrictions on output due to meticulous insistence on craft demarcation; insistence on overmanning of machines; strikes at short notice, often just before a launching, by groups of employees to enforce a wage claim which cannot be granted without repercussions on the wages of other groups; the creation of shortages of workers by restrictions on entry and then the exploitation of the shortage; bans on overtime or the insistence that all must work overtime if some are to do so; and bad timekeeping.[226]

[224] Geddes Report, p. 142.
[225] Ibid., p. 123.
[226] Ibid., p. 110.

Of course, the unions saw things quite differently. They argued that the employers had voluntarily signed on to the agreements about which they now complained and that the employers had themselves originated the craft demarcations. Moreover, they claimed that the shipyards saw their unionized labor forces as disposable and had absolutely no concern for worker satisfaction, employment security or safety. Facing apathy at best and intransigently belligerent animosity at worst from shipyard managements, unions had found that strikes were the only way to get management to listen to union grievances.

The two sides had diametrically opposed worldviews and the history of British shipbuilding shows the results of that divergence. As displayed in Table 8, in the post-World War II era there was no other industry in the United Kingdom that had a worse record of labor strife. According to the Report, "the number of stoppages which are 'official' is high—in terms of working days lost, fifty-four per cent as compared with about six per cent in the docks, two per cent in coal mining and fifty-one percent in engineering, including vehicle building."[227] This was "the British Disease" in full flower, with management and labor at complete loggerheads with one another while yet another British industry suffered horrific collateral damage.[228]

[227] Ibid., p. 105. By "official" the Report referred to the fact that the stoppages are actually approved by the union involved as opposed to "unofficial" stoppages. The latter are industrial actions taken on a local level, usually by shop stewards who are unwilling to wait for the often cumbersome official disputes machinery to provide a quickly-needed resolution. The fact that so many shipyard strikes were "official" is indicative of serious dissatisfaction with the state of industrial relations at union management level, a larger problem than a more localized disruption would present.

[228] The term "the British Disease" refers to the ongoing series of strikes and industrial unrest in the 1960's, 1970's and early 1980s which led to a major decline in British industrial competitiveness and which seriously weakened the British economy.

Table 8: TIME LOST TO INDUSTRIAL DISPUTES IN BRITISH INDUSTRY, 1949-1964[229]

Industry Groups	Average Annual Number of Days Lost per 1,000 Employees in Employment	
	1949-58	1960-64
Shipbuilding and Shiprepairing	1,862	1,457
Coal Mining	717	667
Construction	78	141
Engineering and Vehicles	263	436
Textiles	19	27
Food, Drink and Tobacco	11	41
Port and Inland Water Transport	2,049	1,215

Properly recounting the historic reasons for the poor state of British shipbuilding's labor relations would require a book in its own right. However, its roots lay deep in the casualization of the industry's labor pool. Shipbuilders in the past had shown no compunction whatsoever about discharging their workers on little more than one hour's notice.[230] Until 1963 and the passage of formal legislation, shipyard workers had no guarantee of a full week's employment.[231] The harsh and bitter legacy of management contempt and labor hatred was a relationship so poisoned that neither labor nor management had the slightest trust in the other side. As the Report stated,

> The past is very much alive in the minds of the workers in the industry and coupled with the general lack of confidence in the future of the industry, it has bred a deep feeling of insecurity which is at the root of most of the demarcation disputes and the practices in the industry

[229] Ibid., P. 105, table taken from Ministry of Labour.
[230] Ibid., p. 103.
[231] This was not a given until the passage of the Contracts of Employment Act in 1963.

> which are commonly known as "restrictive" but which the workers regard as "protective.[232]

Tim Colton, who spent eight years working at Lithgow's on the Clyde, made the following observation: "Industrial relations in British shipbuilding could not have been worse, particularly on the Clyde, which was known in those days as 'Red Clydeside.' I was amazed at the animosity and contempt shown both by managers for workers and by workers for managers."[233]

That animosity was of long standing. From the 1860's onward there was a near-continuous history of strikes and lockouts, with management suppression of labor followed by industrial action being the common pattern. It was not until the 1880's that Clydeside shipyards would even recognize the existence of unions. In the 1860's and 1870's they repeatedly locked out as many as 20,000 workers to enforce an owner prohibition against them.[234] As the Report noted, the British working class have long memories. Such harsh behavior invariably breeds retribution when circumstances allow, which in a cyclic industry such as shipbuilding was bound to happen eventually. As Table 9 shows, British shipbuilding labor even struck numerous times during World War II when Britain was literally fighting for its life against the Axis.[235] The fact that British shipyard workers would undertake strike action at such a critical time

[232] Geddes Report, p. 103.
[233] Colton, "Staying Afloat," p. 15.
[234] Foster and Woolfson, "UCS Work-In," p. 144-145.
[235] Nothing displays the differences between the contending parties in that war better than this statistic. One can assume that the response of the Gestapo or the Kempeitai to striking workers in Germany or Japan would have been somewhat different than the tolerant British one. However, Minister of Labour Ernest Bevin did threaten striking workers in one dispute with immediate induction into the British military.

is a clear indication that their alienation from shipyard management and even their own government was all but complete.[236]

Table 9: STOPPAGES OF WORK IN THE SHIPBUILDING INDUSTRY, 1939-1945[237]

Year	No. of Strikes Beginning in Year	No. of Workpeople Involved	Working Lost Days
1939	39	4,300	37,000
1940	65	10,100	37,000
1941	147	27,300	110,000
1942	111	42,000	192,000
1943	196	32,000	137,000
1944	199	44,000	370,000
1945	186	27,700	143,000

With the election of the Labour Government in 1945 and the implementation of the Beveridge Plan creating the first modern welfare state, shipyard managements were effectively put on notice that their workers had veto power over their activities. This state of affairs was a major influence on a management mindset that was already afraid of the costs of modernization. Management realized that any modernization planning threatening to reduce manning would automatically be attacked by the union facing job losses.

[236] Foster and Woolfson, "UCS Work-In," pp. 148-205. The entire book resonates with the theme of alienation and betrayal. Shipyard labor on the Clyde felt betrayed by everyone except Glaswegians and their local leadership. They had little trust in the Labour Party, less in the Conservatives, and none whatsoever in shipyard management.

[237] Johnman and Murphy, "British Shipbuilding," p. 72. The information in the chart is taken from data found in the U.K. Public Record Office, CAB 102/877.

Management could not combat this problem effectively for two reasons, one tactical and one strategic. On a tactical level, for union grievances that entailed picketing, labor solidarity would generally preclude other union members from crossing picket lines. Therefore, in a yard with fifteen unions (the number cited as the average in the Geddes Report), any one union going on strike could actually paralyze a large part of the shipyard simply by making personnel movement impossible. Few union members would give the slightest consideration to crossing a fellow union's picket line knowing that their own livelihood depended on other unions respecting all union picket lines.[238] From a strategic standpoint, the only certainty in the relationship between shipyard unions and shipyard management was that both sides expected the worst, saw no hope of improved relations, and would do all they could to hurt the opposing side.[239] Contemptuous as both groups were of the other, working together to improve productivity and increase business simply was not on the agenda for either. Both parties saw themselves in a zero-sum contest where any gain for one side represented a loss of exactly the same magnitude for the other.

Management generally pictured their unionized workforce as cunning, lazy scroungers bilking the company out of excessively high wages for the absolute minimum of work. Unionized workers in general, and their leadership in particular,

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[238] Hansard, House of Commons Papers, Session 1983-4, 14 March 1984, Scottish Affairs Committee. "Scott Lithgow Limited: The Economic and Social Consequences of Closure," p. ix. Taking Scott Lithgow as an example, "92.3 per cent of the hourly workforce lives within four miles of the yard." In addition to the economic impetus, physical intimidation or the threat thereof played a large part in maintaining working class solidarity. Since most unionized shipyard workers lived in close proximity to the yard, their fellow workers knew where they lived and who their family members were. Any individual blatantly violating a collective action measure was putting both his and his family's health and safety at risk.

[239] Lorenz, "Decline," p. 105. The absolute certainty of both labor and management that the other party was not only wrong but despicable made any efforts at compromise on major issues a forlorn hope. Bitterly secure in this knowledge, options for institutional change by British shipbuilders were considerably self-circumscribed.

caricatured management as bloated plutocrats intent on "grinding the faces of the poor" with malice aforethought and great glee at the prospect.

It is fair to note here that there was a considerable Communist component in the shipbuilding workforce and that Communists were certainly vastly overrepresented among Clydeside shop stewards.[240] Their generally held and widely publicized belief was that shipbuilding employers "had starved the industry of the necessary investment and were now intent on extracting the last penny before moving off elsewhere."[241] Consequently, management's message to their unionized employees that times were tough and that there were no other choices but change or collapse invariably fell on deaf ears.[242] It generally took the appearance of liquidators at the shipyard gates to make union leaders understand that management had been telling them the truth about potential insolvency. Of course, at that point the time for negotiating reasonable settlements was long past.

From the management perspective, the efforts of the Geddes Report to deal with the problem of labor relations were damaged by its stance that employers, under conditions of full employment, "must keep a labour force together even at the price of taking orders at a loss."[243] This was an unrealistic viewpoint that was not in keeping with the general tenor of pragmatism that suffused the Report. The Committee should

[240] Foster and Woolfson, "UCS Work-In," pp. 154-156, 203. The three major leaders of the Upper Clyde Shipbuilders "Work-In," Jimmy Reid, Jimmy Airlie and Sam Barr, were all active members of the British Communist Party.
[241] Ibid., p. 164.
[242] Alwyn W. Turner. Crisis? What Crisis? Britain in the 1970's. (London: Aurum Press, 2008), pp. 84-85. To illuminate the absurdity of the situation Turner referenced British stand-up comic Bernard Manning. Manning used to tell a joke about Edward Heath showing Alexey Kosygin, Premier of the Soviet Union, around a British factory. Kosygin was shocked by the slack working hours and the prevalence of tea breaks. He boasted to Heath, "In Russia, we work from six in the morning till ten o'clock at night!" "You couldn't get these lads to do that," replied Heath. "Why not?" demanded Kosygin. Heath replied, "Because they're all Communists."
[243] Geddes Report, p. 112.

have realized that the shipyards, almost all of which were already losing money, were certainly not going to accept this deficit-increasing assumption at face value. Given that as commercial enterprises they were already having problems maintaining sufficient working capital, they simply couldn't afford to bear the additional losses. Moreover, the position was also questionable from the perspective of technological modernization. The Shipbuilding Inquiry Committee was aware that if the capital investment and facility modernization it was calling for actually occurred, such investment would primarily be directed toward labor-saving devices. This meant that modernization would diminish the numbers of shipbuilding workers needed per ton of ship delivered. Consequently, even if productivity increased drastically, there would have to be a great many more ships ordered from British shipyards just to maintain the current workforce, much less expand it.[244]

Another major issue that caused many problems in shipyard labor relations was the constant irritation caused by craft demarcation. All shipbuilding craft unions had, by contract or long-established prior practice, certain tasks specifically reserved to that craft. Unions clung fiercely to these demarcations due to the "fear that work may at any time become short."[245] These craft demarcations caused much wasted production time and greatly increased labor costs through forced overmanning of production

[244] Ibid., p. 152. The Report provides three potential hypotheses. The first is "decline," in which the industry attracts little additional investment, builds slightly more than 1 million gross tons per year and shows employment declining to 30,000. The second hypothesis, "holding on," projects a situation in which the industry does a better job of deploying its available resources but remains insufficiently capitalized. In this scenario there is approximately 1.75 million gross tons constructed per year. Shipbuilding employment remains steady at 50,000 but attracts little interest from potential new entrants. The last hypothesis, "growth," is based on major reorganization and a considerable influx of new resources. This scenario projects the industry expanding to 2.25 million gross tons per year but only a "slight" increase in employment over 50,000. Note that this scenario posits a 22% increase over construction expectations for the "holding on" hypothesis but with very little increase in manpower requirements.

[245] Ibid., p. 104.

work.[246] Many tasks which could have been done quite satisfactorily by workers from a different craft union already at the job site could not be accomplished by those workers because craft demarcation regulations prohibited it.

As an example, in a Geddes Report-era British shipyard it really did take three people to change an overhead light bulb. Craft demarcation necessitated a laborer (member of the Transport and General Workers Union) carry the ladder to site, a rigger (member of the Amalgamated Society of Boilermakers, Shipwrights, Blacksmiths and Structural Workers Union) erect it and place it in the proper position, and an electrician (member of the Electrical Trades Union) actually remove the old bulb and screw in the new one. Production was often halted while waiting for a member of the appropriate union to arrive to perform the job reserved by agreement for them. Such working conditions obviously considerably hampered productivity and were just one more impediment exacerbating the already difficult problem Britain's shipbuilders faced in competing with overseas rivals. What made this impediment even more vexing was that it was so clearly self-imposed. As the Report stated, "the artificiality of many of the demarcations is illustrated by the fact that they are mainly decided by yard practice and vary from yard to yard; a job which belongs to a particular craft in one yard may be forbidden to that craft in the yard next door."[247]

These craft demarcations had gradually emerged out of the original craft structure for wooden sailing vessels. By the second half of the 20th century they had become work requirements all but graven in stone. Since the fifteen unions employed in most

[246] Ibid., pp. 104, 116. The Report specifically referred to restrictive practices such as "all or none" embargoes where a trade would refuse to allow overtime unless the entire department was included. Noting the wastefulness of such requirements, the Committee stated that they were "strongly of the opinion that the existing craft structure will less and less match the realities of the industry…."
[247] Ibid., p. 104.

British shipyards had little reticence about stopping work over any management infringement of these demarcated boundaries, it is not surprising that British shipyard management often simply let union leadership at squad level handle such issues. If two unions disagreed over a demarcation boundary, shipyard management could often avoid being involved by simply insisting that the unions settle their own problem. This tactic was not always effective and often there were work stoppages despite the fact that the shipyard commonly had nothing to do with craft union members overstepping demarcation boundaries.

More problematic, however, was that as shipbuilding declined in the areas where it had long been established, the industry began to suffer from a shortage of skilled labor made worse by the forced overmanning. Shipbuilding's diminishing importance in its traditional districts was accompanied by a fortunate increase in other industries such as light engineering and manufacturing. Such industries often sprang up on greenfield sites outside the established shipbuilding towns on the Clyde, Tyne, Tees and Wear Rivers. Many skilled shipyard workers who found themselves either redundant or working reduced hours discovered that they could obtain employment elsewhere in the local area, often with higher pay, better conditions and greater security of employment. Britain's Shipbuilding Industry Training Board (SITB) noted in a 1967 report that for every 100 skilled workers who left shipbuilding to take up work elsewhere, only 85 came from other industries to replace them. Taking into account both the loss of skilled workers and apprentices, the SITB stated that "the

industry's loss of manpower to other industries is 20% over and above its recruitment of labour from those industries."[248]

It is not surprising that shipbuilding would have been losing people who had the opportunity to move to different industries. The Geddes Report noted that "of its nature a great deal of shipbuilding work must be conducted either in large sheds which are not easy to heat or on open berths where working has to take place sometimes in very cramped surroundings and sometimes in conditions which are cold and wet."[249] They also suggested that a code of minimum practice should be established wherein a) enclosed spaces would have minimum temperatures specified, b) canteen facilities would be made available allowing a worker to obtain a hot meal at mid-day, c) modern lavatories and urinals would be provided, including adequate temporary sanitary facilities in vessels under construction, d) adequate individual lockers would be provided along with washing and bathing facilities (including hot water), and e) recreational facilities would be provided where possible.[250]

Such a recommendation, of course, was an all but explicit declaration that these practices were generally not in place at the time of the Report, and the experience of shipyard workers bears that out. Tim Colton, reminiscing about the "Dickensian" working conditions existing during his time at Lithgow's, was considerably more colorful in his description. After noting that in the 1980's Japanese shipyards found it difficult to attract young people to shipbuilding because potential workers viewed it as a "3D job," i.e. dirty, difficult and dangerous, Colton remarked that "Japanese

[248] Shipbuilding Industry Training Board. Report and Statement of Accounts. (London: HMSO, 1967), p. 8
[249] Geddes Report, p. 118.
[250] Ibid.

shipyards were like hospitals compared to those on the Clyde." After favorably commenting on the rigorous Japanese safety procedures and their extensive training and education programs, Colton explained the realities of working life for a shipyard employee at Lithgow's during his tenure there.

> First, there was mud: a relatively small part of the yard was paved and it rained all year round. Then, there was rust: the steel was delivered to the yard rusty and it got rustier before it was eventually painted. And wet rust is even nastier than dry rust. Then there was the lack of sanitation: there were no showers or changing facilities—workers went home in the clothes in which they had come to work—and many did not have indoor plumbing, let alone laundry facilities at home. The toilet facilities in the yard were both grossly inadequate and insultingly unsanitary, a condition made worse by the medieval restrictions on a worker leaving his post. Health, environmental and safety concerns? Forget about it.[251]

Colton also confirmed the SITB Report's conclusions with regard to workers leaving the industry. He noted that during his time at Lithgow's he saw numerous light industries established in Glasgow. One of them was IBM, which established its largest European computer manufacturing factory there. He observed that "these companies had no difficulty in picking off the smarter young workers from the declining old-line industries."[252] With skilled workers experiencing both the "push factors" of poor conditions in a shrinking industry and the "pull factors" of higher pay, better working environment and greater employment security in a new industry, it is easy to see why British shipbuilding found itself facing a serious shortage of skilled labor in the 1960's.

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[251] Colton, "Staying Afloat," p. 25. He notes that it was not until the mid-1960's that Lithgow's actually built a cafeteria in a building that also included showers and changing rooms. He remarked that initially shipyard management thought the workers would not use the facility and that "the investment was a complete waste of money." Actually, it transpired that the workers took great advantage of it and utilized it fully.

[252] Ibid., p. 26.

While high costs, late deliveries and poor labor relations were serious and potentially fatal problems, their danger was magnified by the fact that British shipyard management was generally not up to the task of confronting them. The Geddes Report found that shipyard management in almost every area was deficient when compared to its overseas competitors. The most pressing problem was that in an increasingly competitive industry British shipyards did not successfully perform the financial management tasks—marketing, budgeting and procurement--necessary to build vessels profitably. Marketing, budgeting and procurement are absolutely critical financial functions at any shipyard and they must be skillfully managed if there is to be any hope of profitability. British shipyard management consistently underperformed in all three areas.

On the input side of the financial equation the Report found that British shipyards didn't market or publicize their product properly, thus losing by default a considerable amount of potential business to more active and energetic competitors. Some of this failure was due to complacency caused by the long period of full order books since the end of the Second World War. During that period much shipbuilding work had come to the shipyards on its own. It was a seller's market and buyers were eagerly seeking berths at already overbooked British shipyards. In that halcyon period from 1945 to 1960 not only had British shipyards fallen out of the habit of pursuing work, they had forgotten the primary rule of any customer-related business, which is that the customer is always right. Nor had they been concerned about British shipbuilding's

increasingly poor public image, which was one of incessant union strife in an obsolescent industry suffering constant decline.[253]

As an example, Lester Goldsmith, Chairman of the Gulf Oil Refining Company, approached one British yard about the construction of two steam turbine-driven oil tankers. Well briefed by Gulf Oil's excellent marine superintendent's office and with price no object, Goldsmith knew exactly what he wanted in his vessels when he presented the yard with his technical requirements. He specifically wanted a steam propulsion plant utilizing high pressure superheated steam. Because he was going to have that type of high-performance steam generating plant he also wanted modern "rolled" ends on the vessel's main and auxiliary condenser tubes. These would last longer in the more taxing operating environment caused by higher steam throughput and temperature differential.[254] Goldsmith was quite surprised when he was told by

[253] Johnman and Murphy, "British Shipbuilding," pp. 145-148. They were quoting British Shipbuilding Exports: The Norwegian Market, Report by L.S. Holt, 28 November 1967. (London: Shipbuilder's and Repairer's National Association, 1967.) Britain's largest shipbuilding export customer had long been Norway, which had traditionally ordered most of its vessels from British shipbuilders. However, in the late 1950's the Norwegians decisively shifted to the Japanese as their primary shipbuilders. One of the reasons for this was explained by a 1967 report commissioned by the British Shipbuilding Export Association. The author, L.S. Holt, stated that the Norwegian ship-owning community closely followed the public pronouncements made by senior figures in British shipbuilding. According to him, the Norwegians had come to the conclusion that British shipbuilders had tacitly acquiesced to poor delivery and construction performance because they had no idea how to address the issues causing that poor performance.

[254] The higher the steam pressure and temperature, the higher the operational efficiency of the propulsion plant. However, there is a cost for this in that the water chemistry in such high-pressure boilers must be scrupulously maintained at a level of purity much higher than potable water. Properly treated high pressure steam plant boiler water will not conduct electricity. In the steam cycle steam which has passed through the turbine is turned back into feed water in the condenser. This condenser, which operates under conditions of high vacuum, is cooled by salt water flowing over tubes carrying the condensing steam/water mixture. Any leakage of the salt water coolant into the steam/water side of the condenser is dangerous for the boiler as the salt and other solids cause both operating and maintenance problems. A salt level in boiler water which wouldn't be noticeable in drinking water will cause a high pressure steam plant to be taken out of operation for "blowdown," i.e. removal of much of the boiler's water and replacement with water of higher purity. "Rolled" condenser tubes made for a permanent installation as the condenser tube was expanded to form a leak-proof metal-to-metal fit with the tube sheet. This was done by means of inserting an expanding mandrel into the end of the tube and "rolling" it until the end of the tube was wide enough to tightly press into the tube sheet. The reason "rolled" tubes were superior to "packed" tubes was that a "rolled" tube would normally go many years, quite possibly even the ship's entire lifetime, without needing maintenance whereas "packed" tubes were prone to leakage and would inevitably have to have the "packing" changed every few years.

the shipyard that his vessels would receive a low pressure, low temperature steam plant and that it would be equipped with a condenser with "packed" condenser tubes, not rolled. When Goldsmith told the yard that he was not willing to accept that, their response was to inform him that "their order books were full" and to politely imply that he might wish to take his business elsewhere.[255] Declaring himself "disgusted" with the attitude of British shipyards, Goldsmith took his business to Belgium where his vessels were built exactly as he requested.

Geddes found that British merchant shipbuilders in 1965 had a passive attitude with regard to soliciting new business, making little effort to contact potential clients or remain in touch with former ones. What marketing activity took place generally came through the personal efforts of the yard's chief executive since most British yards did not have a dedicated sales staff. This was clearly a major failing since British shipyard chief executives already had far too many tasks on hand to be able to successfully prosecute a thorough and sustained sales campaign.

The Report recognized that the aggressive marketing techniques used by their overseas rivals had cost British yards a considerable amount of their market share. They addressed the problem by recommending that each proposed regional shipyard grouping establish a dedicated sales department. This sales department was to be tasked with maintaining close contact with both current and former clients and to seek out potential customers. Moreover, it was suggested that the shipbuilding industry start paying much more attention to publicizing its successes. The Report recognized

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"Rolling" condenser tubes meant a considerable savings in operational and maintenance costs over the lifetime of the vessel.

[255] Johnman and Murphy, "British Shipbuilding," p. 110. Public Record Office, ADM 205/106, 'Present Weakness of the Marine Engineering Industry and its Consequences,' Appendix 4, extract from a private letter by Lester Goldsmith, 15 May 1953.

that by 1965 the reputation of British shipbuilding had been seriously damaged and that even if British shipyards were able to overcome their problems of high cost, late delivery and labor strife, it would take quite some time and a great deal of good publicity to overcome the generally negative perceptions of British shipbuilding that had been established in the world in general and the shipping community in particular. As the Report said, British shipbuilders needed to recognize that "shipbuilding has become the business of promoting the sale of ships as well as the art of designing and assembling them in the yard."[256]

As for British shipbuilding's budgeting woes, they stemmed largely from the fact that Britain's shipyards generally had inadequate design and production planning, a failing which far too often led to inaccurate estimates of time and manpower requirements.[257] Combined with relatively unpredictable reasons mentioned earlier such as industrial action, vendor delays and inflation, it was just extremely difficult for planners in British shipyards to provide accurate cost estimates when tendering for projects. There were simply too many variables that were almost completely out of the control of the shipyards but which could easily add huge amounts to the costs of any vessel.

This problem was compounded by the fact that, in an effort to be competitive, planning generally erred on the optimistic side and assumed earlier completion dates and fewer required resources than were likely to be actually necessary. In practice this meant British shipyards routinely underestimated actual vessel construction costs and

[256] Geddes Report, p. 46.
[257] Ibid., p. 77-80. This was an area the Report highlighted with regard to the lack of production control and production measurement.

therefore could lose money despite having full order books.[258] Such unwarranted optimism also meant they often misjudged the likelihood of incurring additional costs due to late delivery. These financial penalties could be extremely heavy and increased with every additional day of delay. These cumulative result of these planning deficiencies meant that the actual cost of a completed vessel was usually unknown to the shipyard at any stage of construction prior to final delivery, thus making any fixed-cost project a potential financial disaster. Britain's already undercapitalized shipbuilders soon realized this inability to accurately estimate final construction costs meant that every accepted contract was, in effect, "betting the firm." In times of moderate inflation this lack of ability to accurately project final cost was dangerous. In times of high inflation such as the late 1960's and 1970's happened to be, it was critically so. Without at least relatively accurate time and cost estimates there was no way shipyard accountants could actually make any long-term projections about cash flow. This meant that the critical focus on short-term finances, for which the Geddes Report roundly criticized Britain's shipbuilders, was really the only logical position for those shipbuilders to take. They clearly understood how closely they were skirting the abyss and how futile it was to worry about the long term when surviving the current quarter was in serious question.[259]

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[258] While British shipyards often charged less than the true final cost of vessel construction, their construction inefficiency was such that they still had higher costs than their competitors. In actuality, if British shipbuilders had been able to accurately predict their true construction costs their prices would of necessity have been even higher and they would have been even less competitive in world markets.

[259] While waiting for the Shipbuilding Inquiry Report to be issued, one Clyde shipbuilder, Fairfields, unexpectedly entered into receivership. Upon hearing of this announcement the union shop stewards and local Members of Parliament approached the Prime Minister and the Chancellor of the Exchequer directly requesting that the British Government provide sufficient financing for Fairfields to continue in operation until after the publication of the Report. The receiver had been appointed on 15 October 1965. On 29 October the receiver reported to the Bank of Scotland and the Chancellor, Mr. James Callaghan, that the yard's resources were completely depleted and that only immediate financial assistance would prevent closure. On 4 November 1965 the Chancellor announced to Parliament that the Bank of England would provide £1 million to Fairfields to allow the yard to continue in operation until the following spring. The intent was to allow time for the Geddes Report to be published and provide its recommendations on what was the best way forward for yards like Fairfields.

GEDDES REPORT SOLUTIONS

The Report had proposed that Britain's 27 major shipyards be grouped into "at least four big and compact shipbuilding groups." There were a considerable number of other recommendations but this was the primary one, the essential causative factor which the Shipbuilding Inquiry Committee believed would bring British shipbuilding back to profitability. The grouping concept appeared to address many of the inherent organizational problems faced by Britain's relatively small and undercapitalized shipyards as well as permitting them to enjoy major economies of scale.

The response to this proposal was uncritical acceptance. Even those prone to be critical of the industry agreed that the logic underpinning this suggestion was sound even if the details of achieving such groupings might require some difficult negotiation.[260] What should be continually borne in mind with regard to the Report's recommendations is the sense of urgency involved. The Report itself was undertaken in response to a serious crisis clearly visible to all concerned with the industry. "Muddling through" and "benign neglect" were not viable options. Both the Government and Parliament realized something had to be done or the industry would completely disappear. The Geddes Report did not promise miracles but it did provide a framework for halting British shipbuilding's decline that appeared reasonable and not too costly. Once that framework was accepted the other recommendations were included as a matter of course.

[260] Neither the Shipbuilding Inquiry Committee nor the British Government expected that the process of accomplishing the groupings would be a simple task. They counted on inducing the cooperation of recalcitrant yards through a combination of the carrot of Government financial largesse and the stick of losing that State assistance to other, more compliant domestic competitors.

The most important of those recommendations included having some yards narrow their scope of work to a specialization in certain types of vessel construction, Government assistance in matters of taxation reduction and steel pricing from British manufacturers, and the establishment of a Shipbuilding Inquiry Board to oversee the industry's reorganization.[261] The Shipbuilding Inquiry Board would be responsible for the administration and control of Government assistance, financial and otherwise, provided to the newly formed shipbuilding groups. The Shipbuilding Inquiry Board was to last for five years, by which time the Committee believed that the amalgamations should be complete. The Committee made it quite clear that the amalgamation process should take place as quickly as possible since they "attached great importance to the speed with which the industry is reorganized."[262]

Interestingly enough, in light of the massive sums the British Government later spent on assistance to the shipbuilding industry, the Shipbuilding Inquiry Report did not call for large amounts of state funding. It called for the Shipbuilding Industry Board to be provided with authority to grant up to £30 million in credit guarantees to UK ship owners on the same terms as those allowed for export orders.[263] There was provision to make Government money available to coalescing groups which might need to purchase "an interest in a participating company which would otherwise hold up the

[261] With regard to steel pricing, the Geddes Report noted that in the 1930's British producers offered British shipbuilders prices on heavy plate approximately 20% lower than would be charged to other customers. Even during the Second World War, under conditions of maximum output, shipbuilders still received a discount of more than six per cent. In 1949 such discounts were ended and British shipbuilders were forced to pay full price for plate. With the cost of steel representing approximately 25 per cent of an average vessel's cost and British shipbuilders being the largest users of heavy plate in Britain, the Report saw great advantage for both parties in reverting to the arrangements existing in the 1930's. Unfortunately, for reasons both legal and economic this suggestion was not taken up by the British steelmakers. This failure to cooperate played a not inconsequential part in the U.K.'s loss of both industries. This is a perfect example of the type of structural impediment which would have been ruthlessly bulldozed aside by the Park Chung Hee-led Korean Government.

[262] Geddes Report, p. 148.

[263] This would have meant providing loan guarantees at an interest rate of 5.5 per cent.

integration of that company within the group."[264] The Report's recommendation was that a limit of £5 million be placed on such loans. The Report also recommended that £12.5 million in loans be used for purchasing shipyard assets which would become unnecessary due to grouping, and £15 million be used for the construction of new "group" facilities where needed. Another £5 million was to be made available for grants to yards suffering "transitional losses." The Committee expected that these funds would be required to assist shipyards while certain assets were unavailable due to grouping-required restructuring. The Report called for a total Government expenditure of £32.5 million in loans and £5 million in grants to be provided to facilitate the conversion from individual yards to shipbuilding groups.[265]

The legislation incorporating the recommendations of the Shipbuilding Inquiry Committee was called the Shipbuilding Inquiry Act and it received the Royal Assent on 28 June 1967. While this was more than one year after the presentation of the Committee Report to Parliament, and thus considerably longer than the Committee hoped it would take to begin implementation of the grouping scheme, the Act hewed very closely to the Report's recommendations. Shipyard groupings did eventually take place, if not quite in the manner expected, and the 27 shipyards studied by the Geddes Report were merged into twelve separate shipbuilding groups, only nine of which built commercial vessels.[266]

[264] Geddes Report, p. 147. This facility was very useful in assembling Upper Clyde Shipbuilders.
[265] Ibid.
[266] The Geddes Report did not specify exactly how groupings were to take place or which yards should be in any particular group. In the event, all but one of the yards studied by the Report was eventually considered to be "grouped" even if, like Harland and Wolff and Cammell Laird, they were in a "group" of which they were the sole member.

Table 10: SHIPBUILDING INQUIRY REPORT SHIPBUILDERS PRE-AND POST-MERGER[267]

Original Shipbuilders	Merged Grouping
East Scotland: Henry Robb Shipbuilders, Ltd. Caledon Shipbuilding and Engineering Co., Ltd. Burntisland Shipbuilding Co., Ltd.	Robb Caledon Shipbuilders Ltd.
Lower Clyde: Scotts' Shipbuilding and Engineering Co., Ltd. Lithgow's Ltd. Greenock Dockyard Co., Ltd.	Scott Lithgow Ltd.
Upper Clyde (post-UCS): *John Brown & Co. (Clydebank Ltd.) *Yarrow & Co., Ltd.	Yarrow (Shipbuilders) Ltd. (exclusively naval construction)
Upper Clyde (post-UCS): *Chas. Connell & Co. (Shipbuilders), Ltd. *Alex. Stephen & Sons, Ltd. *Fairfield Shipbuilding & Eng. Co. Ltd. *Barclay Curle & Co., Ltd.	Govan Shipbuilders Ltd.
Northern Ireland: Harland and Wolff Ltd.	Harland and Wolff Ltd.
Tyne and Tees: Vickers Ltd. (Shipbuilding Group) Swan Hunter and Wigham Richardson Ltd. Hawthorn Leslie (Shipbuilders Ltd.) John Readhead & Sons Ltd. Furness Shipbuilding Co., Ltd. Smith's Dock Co., Ltd.	Swan Hunter and Tyne Shipbuilders Ltd.
Wear: Austin & Pickersgill Ltd. Bartram & Sons Ltd.	Austin & Pickersgill Ltd.
Wear: Doxford and Sunderland Shipbuilding, comprised of Wm. Doxford & Sons (Shipbuilders) Ltd., Sir James Laing & Sons Ltd. and J.L. Thompson & Sons Ltd.	Doxford and Sunderland, Ltd.
Mersey: Cammell Laird & Co. (Shipbuilders & Engineers) Ltd.	Cammell Laird Shipbuilders Ltd.
Southampton: John I. Thornycroft & Co., Ltd.	Vosper Thornycroft Ltd. (exclusively naval construction)
Barrow: Vickers Ltd. (Shipbuilding Group)	Vickers Ltd. Shipbuilding Group (exclusively naval construction)
Blyth: Blyth Dry Docks and Shipbuilding Co., Ltd.	No longer building ships
Appledore (Devon):* Appledore Shipbuilders Ltd.	Appledore Shipbuilders Ltd.

**Appledore Shipbuilders was not included in the Shipbuilding Inquiry Committee Report.*

[267] "British Shipbuilding 1972," p. 86. Chart derived from information provided in source. All yards marked with an asterisk were included in the original Upper Clyde Shipbuilders grouping. The Yarrow yard was subsequently de-merged in February 1971.

What no one at the time the Shipbuilding Inquiry Act was passed could have known was that the Geddes Report, and the opportunity it represented for a rejuvenation of British shipbuilding, was really Britain's last chance to save its shipbuilding industry. Two unexpected historical events, the oil crisis of 1973 and the emergence of the most fiercely competitive shipbuilder in history, were less than a decade away from drastically changing the entire shipbuilding world.

IMPLEMENTING THE GEDDES REPORT

Britain's shipbuilding industry in 1966 was ready to accept change. The Geddes Report had very clearly laid out both the problems of Britain's shipbuilding industry and a proposed path back to profitability and international competitiveness. British shipbuilders knew they had to take drastic action or what remained of their declining business would also be lost to foreign competition. Moreover, the Shipbuilding Inquiry Committee was adamant that such action not only had to be taken, but that it had to be taken very quickly or the industry would suffer serious, possibly even fatal, damage.

What then happened to British shipbuilding is one of the cruel ironies of history. Unexpectedly buoyed by the 1967 congruence of sterling devaluation, the Suez Canal closure, attractive delivery dates and British owners' surprisingly strong response to the Geddes Report's shipbuilding credit guarantee scheme, British shipbuilding in the next five years celebrated the largest order books in its long history. [268]

[268] The attractive delivery dates were due to the relative emptiness of British shipyard order books in 1967. Because they had such a small backlog of work they could promise on-time delivery with at least some hope of fulfilling their promise. The response to the shipbuilding credit guarantee scheme came as a complete surprise to the Government, necessitating a number of sizable increases in the amount of money allocated for credit guarantees. The Geddes Report had called for £30 million. This was first raised to £200 million in the Shipbuilding Industry Act (1967), increased again to £400 million by the

Table 11: U.K. SHIPBUILDING ORDER BOOKS 1967-1971 ('000 Gross Tons)[269]

		1967	1968	1969	1970	1971
A (+)	Beginning Year Order Book	2259	2068	3559	4755	4893
B (+)	Orders Received	1077	2565	2119	1769	1027
C (-)	Deliveries	1188	1047	828	1327	1233
D (-)	Cancellations	80	27	95	304	322
A+B+(-C) + (-D)	End Year Order Book	2068	3559	4755	4893	4365

This unexpected cornucopia of orders delighted both the shipbuilders and the Government. [270] However, it turned out to be a very mixed blessing at best. The first casualty was the sense of urgency which had impelled the Geddes Report. That was all but washed away in the flood of new work. Shipyard groupings eventually took place but did so slowly, inefficiently and with considerably increased costs. The Shipbuilding Industry Board, along with various other British Government departments, disbursed public money in amounts far greater than imagined by the Shipbuilding Inquiry Committee.[271] The Geddes Report had envisioned a five year lifespan for the Shipbuilding Industry Board. During that time it anticipated the Shipbuilding Industry Board would, in overseeing and assisting the goals described in the Report, expend £32.5 million in loans and £5 million in grants.

Shipbuilding Industry Bill (1968), raised once more to £700 million in the Shipbuilding Industry Act (1971) and finally increased to a maximum of £1,400 million in the Industry Act (1972) as buyers took greater than expected advantage of the scheme.

[269] "British Shipbuilding 1972," p. 86.

[270] Hogwood, "Government and Shipbuilding," pp. 113-114. From October 1966 to September 1967 British shipyards added only 422,000 tons of orders. From October 1967 until 31 December 1968 they received 3,200,000 tons of new construction orders. It was an incredible windfall.

[271] Ibid., p. 93. The amount of outright grant money called for by the Geddes Report, £5 million, was increased to £20 million by the Industrial Expansion Act of 1968. In the same act the requirement for a recipient to be a member of a shipyard grouping plan was waived. The amount of money disbursed in loans and grants by the Shipbuilding Industry Board was dwarfed by the amounts spent by the Department of Trade and Industry and the Northern Ireland Ministry of Commerce.

The reality was far different. Tables 13 and 14 below show that between 1967 and 1972 the British government actually spent almost £160 million on the shipbuilding industry. Note also that, massive as this sum is, it does not include the much larger amounts which, while not spent, had to be reserved for covering potential losses in the shipbuilding credit scheme. What made the situation even worse was that, as the Committee on Public Accounts noted in 1972, most of the money had been spent for purposes other than intended. Government had allocated much of this funding for infrastructure improvements intended to improve efficiency and increase competitiveness. Instead, it was often spent simply to cover operating losses and avoid insolvency.[272] Looking at the amount of money spent compared with the results achieved, anyone investigating shipbuilding subsidy expenditure since the Geddes Report had good reason to wonder if Britain had received sufficient value for money.

While the Geddes Report specified regional proximity as its primary grouping criterion, it carefully avoided making any suggestions about which yards should be assigned which tasks in any given group. This allocation was left up to the individual owners and the Shipbuilding Industry Board to sort out. That was not a simple task as many of the yards came to the groupings with financial liabilities that neared or exceeded the value of their assets. Combining the managements of the profitable companies with the unprofitable ones and configuring the resultant business and financial structures took a great deal of time and negotiation. Once groups were assembled they then had to merge their operating systems, something that was particularly difficult with regard to financial and accounting matters and yet another

[272] Johnman and Murphy, "British Shipbuilding," p. 204.

problem exacerbated by the rush of new orders. The resulting schemes were certainly not optimized on a business basis.

Table 12: AMOUNTS DISBURSED BY THE SHIPBUILDING INQUIRY BOARD TO MAJOR SHIPBUILDERS 1968-1971 (£'000s)[273]

Shipyard/Year	1968	1969	1970	1971	Total
Appledore	0	0	0	1098.9	1098.9
Austin & Pickersgill	0	0	0	0	0
Cammell Laird	0	0	0	0	0
Doxford & Sunderland	12.6	0	0	0	12.6
UCS/Govan	3270.8	2689.5	6565.9	265.3	12791.5
Harland & Wolff	0	5185.4	4,662	5190.7	15038.1
Robb Caledon	10	0	200	304	514.0
Scott Lithgow	8.9	0	0	5236.8	5245.7
Swan Hunter	22.2	2865.5	1222.5	1728	5838.2
Vickers	0	0	0	10.3	10.3
Vosper Thornycroft	9.8	0	0	89	98.8
Yarrow	287.4	685.6	350.8	249.5	1573.3
TOTAL	3621.7	11426	12801.4	14172.5	42221.4

[273] "British Shipbuilding 1972," p. 180. Another £7,036,000 in loans and grants was disbursed to minor shipbuilders and ship repair yards.

Table 13: NON-SHIPBUILDING INDUSTRY BOARD ASSISTANCE TO MAJOR SHIPBUILDERS 1967-1972 (£'000's) [274]

Expenditure Codes: F=Fully Committed, P=Partially Committed, NYB= Not Yet Begun

Company	Government Department	Type of Payment	Purpose of Payment	Expenditure	Total Expenditure	Capital Expenditure Sum
Cammell Laird	Department of Trade and Industry	Equity		F: 1500	1500	
		Equity or Grant	Standby facility	NYB: 6000	6000	
		Equity or Grant	Facility upgrades	NYB: 14000	14000	14000
Harland & Wolff	Northern Ireland Ministry of Commerce	Loan	Prevent insolvency	F: 1500	1500	
		Loan	Interest capitalization	F: 1382 NYB: 1382	2764	
		Equity		F: 4000	4000	
		Grant	To meet losses	F: 14154	14154	
		Waiver	To waive loan interest	F: 735 NYB: 490	1225	
		Loans	Capital expenditure	P: 13000	13000	13000
UCS/ Govan		Loan	Prevent insolvency	F: 7000	7000	
		Advance	Advance to liquidator	F: 10000	10000	
			Purchase of yard	NYB: 2800	2800	2800
			Development	NYB: 9200	9200	9200
			Working capital	NYB: 10200	10200	
			To meet losses	NYB: 13100	13100	
Yarrow	Ministry of Defense (N)	Loan	Working capital	F: 4500	4500	
Other	Ministry of Defense (N)	Loan	Working capital	F: 1900	1900	
Total Expended	-	-	-	F:46671 P: 13000 NYB: 57172	116843	39000

[274] "British Shipbuilding 1972," p. 181. The Harland and Wolff numbers exclude another loan of £2 million advanced in 1966.

The man who would become the Chairman of Upper Clyde Shipbuilders (UCS) had the following to say about its formation:

> When I reported as Chairman of the [Shipbuilding Industry Board] working party to the Vice-Chairman and to the Government and SIB at the time I made it very clear that in my view the formation of the Upper Clyde Group could not possibly be considered as a financial venture, that is to say one in which you put your money in with a hope of getting it out within a reasonable period of time.[275]

This was one of several grouping situations where the Shipbuilding Industry Board acted to include yards which rational economic management would have left to liquidation, from which the assets could have been recovered for much smaller amounts.

With regard to the problem of undercapitalization, all groupings began their existence handicapped by debt group members brought to the merger from prior operations. There was also a serious shortage of working capital in all groups. This lack was particularly severe for Cammell Laird, Swan Hunter and Austin and Pickersgill. However, all of Britain's merchant shipbuilding groups were having liquidity problems, with their working capital either at unusually low levels or in actual deficit, as is shown in Table 14. As a whole, the merchant shipbuilders had gone from having £11.1 million in working capital available to an £11 million working capital deficit in five years. As available working capital declined, groupings became increasingly dependent on Government funding since their past credit histories and lack of profitability made them poor candidates for commercial loans at favorable rates.[276]

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[275] Hansard, House of Commons Papers, Session 1971-2, HC 347-I, Sixth Report from the Expenditure Committee Trade and Industry Subcommittee, Public Money in the Private Sector, Q-2132.

[276] Ibid., p. 177. Of the warship builders, only Yarrow was having problems and these were closely related to its inclusion in Upper Clyde Shipbuilders.

The amount of available working capital had been rapidly decreasing since 1968. This was in large part due to losses incurred on fixed-price contracts. One of the reasons the huge influx of new fixed-price orders received between 1967 and 1971 would not be as beneficial as initially hoped was because many of those orders would also, due to the bedeviling problems of late deliveries and inflation, end up costing shipyards more than the received price. To cite just one example, during its financial troubles in 1970 Cammell Laird went to great lengths to induce one of its customers to cancel an already-accepted order for four chemical tankers. Counterintuitive as this action might seem, Cammell Laird projected that inflation and late delivery penalties would result in a £2 million loss for the company if the four vessels were completed at the agreed price.[277] Depending on the amount of delay, the penalties for late delivery could be as high as 20% of the original cost and inflation could add another 20%.[278] For a British shipbuilding industry already prone to undercharging, the numbers simply did not add up to profitability.

Consequently, between the contentious issues of grouping and the problems caused by trying to make major administrative and production changes in the midst of an unprecedented building boom, a great deal of valuable time was lost. The restructuring of British shipyards, where it happened at all, was done in a halting, piecemeal fashion disrupted by strikes, a heavy work load, and the issues of amalgamation. It would have to have been done much more comprehensively for there to have been any hope of making them efficient enough to compete internationally. Instead, lulled into a sense of complacency by five good years, British

[277] Hogwood, "Government and Shipbuilding," p. 120.
[278] BAH, "British Shipbuilding 1972," p. 177. Inflation on direct labor, miscellaneous supplies and equipment and overhead, items which constitute approximately 40% of vessel cost, had been as high as 50% between 1968 and 1971.

shipbuilding squandered its last chance to survive the desperately hard times that were coming.

Table 14: SHIPBUILDERS' WORKING CAPITAL 1967-1971 (£'000s)[279]

Company	1967	1968	1969	1970	1971
Appledore	124	144	(76)	(434)	(520)
Austin & Pickersgill	(924)	(682)	(605)	(605)	(546)
Cammell Laird	1008	1263	(6377)	(3121)	(4814)
Doxford & Sunderland	2000	(28)	(118)	(73)	593
UCS/Govan	No Information Available: Effectively in Receivership				
Harland & Wolff	5459	3664	4708	2612	2691
Robb Caledon	1210	1332	1175	430	286
Scott Lithgow	2288	2233	2328	169	1128
Swan Hunter	Not Available	905	(2960)	(8587)	(9842)
Total Merchant Shipbuilders	11165	8831	(1925)	(9609)	(11024)
Vickers	1807	2335	3053	7088	7556
Vosper Thornycroft	733	1092	839	287	419
Yarrow	(161)	157	320	(1320)	74
Total Warship Builders	2379	3584	4212	6055	8049
Total Working Capital	13544	12415	2287	(3554)	(2975)

[279] Ibid., p. 178. It should be remembered that the Harland and Wolff numbers shown in Table 15 are deceptive. While Harland and Wolff had the largest amount of working capital of any merchant shipbuilder, this was due to Government subventions as the yard had been effectively bankrupt since 1966.

BRITISH SHIPBUILDING 1972: A BAD REPORT CARD

In March 1972 the Conservative Secretary of State for Trade and Industry, John Davies, announced that a long-term appraisal of the prospects for the future of the British shipbuilding industry would be undertaking by the consulting firm of Booz, Allen and Hamilton (BAH). Ordered approximately five years from the passage of the Shipbuilding Inquiry Act, the appraisal was intended to provide a review of the effectiveness of the Geddes Report recommendations, an assessment of the current status of the industry, and a forecast of the probable future for British shipbuilding. That British shipbuilding's longed-for resurgence had yet to take place was clear from the widely publicized difficulties experienced by Upper Clyde Shipbuilders, Cammell Laird and Harland and Wolff. Between 1965 and 1972 all three of these shipbuilders had been saved from insolvency only by last-minute Government financial intervention. In the cases of Upper Clyde Shipbuilders and Harland and Wolff this had happened repeatedly. At the time British Shipbuilding 1972 was commissioned each of these yards was owned wholly or in part by the British Government.[280]

What British Shipbuilding 1972 (the BAH Report) did was bring two very important factors into stark relief. First, it publicly displayed just how lavish Government funding had been in its efforts to assist the industry. Second, it documented just how poorly the industry had responded to its challenges despite the large amounts of State

[280] Ibid., p. 87. Between 1969 and 1971 Cammell Laird had suffered losses of more than £12 million on fixed-price contracts. These losses threatened to bankrupt the entire Laird Group. To insure the shipbuilding group's survival, it was spun off into a separate company with 50 per cent of the new company's shares being purchased by the British Government. Harland and Wolff had repeatedly flirted with insolvency and was bailed out by both the Shipbuilding Industry Board and the Government of Northern Ireland. At the time of the BAH Report the Northern Ireland Ministry of Commerce owned 47.6 per cent of Harland and Wolff. Upper Clyde Shipbuilders was allowed to go bankrupt in 1972 and the remnant was purchased by the British Government and reconstituted as Govan Shipbuilders Ltd. It was wholly owned by the Government.

subsidy received. The opening statement of British Shipbuilding 1972 is quite blunt in its assessment:

> This review of the U.K. shipbuilding industry is pessimistic about the general background situation, and critical of the industry in many areas. U.K. yards generally are under-capitalized and poorly managed; the industry has a poor reputation amongst its customers, particularly for delivery and labour relations; overseas competition has moved more rapidly to modernize and re-equip its facilities and is now better placed to face the forecast surplus of capacity which will exist for the remainder of the 1970's[281]

Booz-Allen and Hamilton had sound reasons for their pessimism. Recalling the list of deficiencies found by the Geddes Report, their investigation found that almost every problem listed was actually worse in 1972 than in 1967. The three most critically damaging major problems, high vessel costs, late deliveries, and poor labor relations, were considerably worse.

With regard to vessel costs, these had risen due to both material and labor price inflation and were in 1971 anywhere from five to 25 per cent higher than competitive prices overseas.[282] While this was a serious blow to British competitiveness, what made the situation even more damaging was that Booz-Allen found that the nine major British merchant shipbuilding firms they studied had their 1971 costs exceeding their 1971 sales revenue by an average of 4.5 per cent.[283] Too expensive to be competitive in the world market, British shipyards still could not turn a profit even at those higher prices. This was the same situation as existed at the time of the Geddes Report and the BAH Report found there had been absolutely no improvement. In fact,

[281] "British Shipbuilding 1972," p. 4.
[282] Ibid., pp. 5, 232. The BAH Report later states that "UK prices quoted at present are on average 10-15 per cent above those offered by European yards and up to 25 per cent above the best prices available." The "best prices available" were undoubtedly Japanese.
[283] Ibid., p. 8

they stated that it would take a 10 to 15 per cent reduction in British construction costs just to match the prices of foreign competition.[284] Worse, the BAH Report also estimated that achieving a 10-15 per cent cut in total construction cost would require a reduction in direct labor costs between 35 and 50 per cent.[285] Within the context of the industry as it stood in 1972, for reasons both economic and political this simply was not possible.

The interlocking nature of these three major problems arises when considering the actions that would be necessary to achieve such a large reduction of direct labor costs. Labor relations in the shipbuilding industry were already the worst of all U.K. industries at the time of the Geddes Report. Bad as they had been at that time, as Chart 1 shows they had since deteriorated. If the labor difficulties mentioned in the Geddes Report represented the "British Disease" in full flower, the labor activism at the time of the BAH Report represented it gone to seed and scattered. While industrial actions five years earlier were generally "official," or union-approved, the "vast majority" of industrial action by 1972 was "both unofficial and unconstitutional," meaning that it was initiated "in breach of agreed procedures" by an individual shop steward or group of shop stewards without notification to or approval from trade union leadership.[286] This meant in practice that it was much more widespread and spontaneous since any shop steward having a bad day could order the men under his jurisdiction to "down tools." In fact, it was quite common to see such unofficial

[284] Ibid.
[285] Ibid.
[286] Ibid., p. 169. Also see B.J. Foley, "Industrial Relations in the United Kingdom," Management International Review Vol. 17, No. 1, "Women in Management" (1977), pp. 3-13. Foley notes that "shop stewards have discovered that industrial action may be a quicker solution of contentious issues than going through a rather cumbersome disputes procedure designed to cope with problems of a less dynamic society and economy."

"wildcat" industrial action take place against the expressed wishes of the local, and sometimes national, union leadership.[287]

The fact that an unexpected strike action of unknown duration could take place at the direction of any given shop steward just added another layer of difficulty to the already problematic planning task facing Britain's shipbuilders. There was no way they could possibly know when a "wildcat" strike might take place nor how long it might take to be resolved. Consequently, there was no way to account for any specific production disruption caused by such a labor outage. Knowing that there would be at least some strikes, the best that could be done was to make a certain allowance at the beginning of the project and hope that labor-related stoppages would not exceed that allowance.

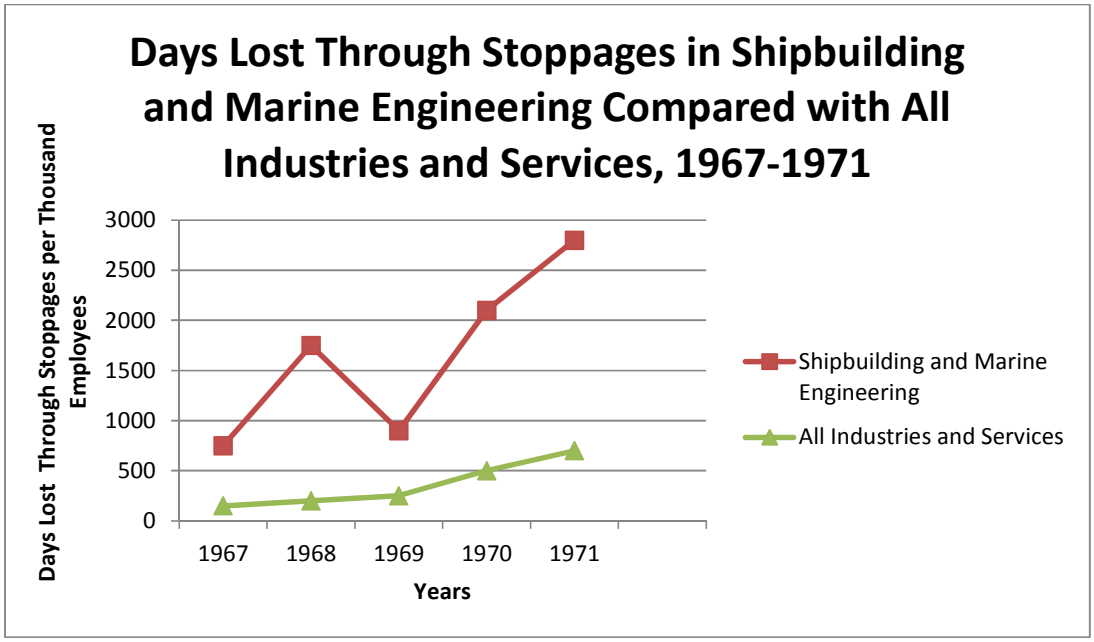
This inability to predict problems caused by industrial action tied into the last of the three major problems, delivery delays. Shipbuilding projects, like other construction engineering projects, are generally planned assuming rationally optimum production progress. Some allowance is made for delay due to conditions outside project control, such as acts of God or force majeure. However, because progress is planned from a conservatively optimal standpoint with as many variables as possible taken into account, pleasant surprises in engineering projects are rare indeed. Surprises are far more likely to be of the negative kind. The actual reason for so much incorrect delivery planning from British shipbuilders at the time of the Geddes Report was that the shipyard planning personnel simply had to deal with too many unknown and uncontrollable variables, variables that in most cases their overseas competitors did

[287] Foley, "Industrial Relations," p. 11.

not have to face. From the start these unknown variables introduced too much potential error into the planners' calculations, thus seriously degrading their usefulness as a guiding implement for management purposes.

Five years later, the BAH Report found British shipyards were still dealing with the same situation and still trying to do so with understaffed, marginally competent management teams that "in most spheres of activity …lack[ed] information in a form which provides a sound basis for management decisions."[288]

Table 15: LOSSES DUE TO BRITISH LABOR STOPPAGES[289]



In fact, the situation had become even more difficult given the building boom and the increases in labor unrest and price inflation. The BAH Report, as did the Geddes Report, placed much of the blame for poor performance on shipyard management and

[288] Ibid., p. 6.
[289] "British Shipbuilding 1972," p. 170. Chart is derived from information originally provided by Department of Employment.

noted three items of particular interest. First, the BAH Report found "there is no evidence of significant improvement in productivity in the last five years, despite some rationalization in the industry."[290] Second, it noted that "a major strength of the shipbuilding industry is the skill and experience of the workforce who often operate in a poor working environment."[291] This assessment does not exonerate labor from responsibility for the industry's problems but it certainly shows they were not the sole source. Third, and possibly most telling, the BAH Report continually refers to the fact that "changes are apparent in several companies, particularly in the last year."[292] In short, despite the Geddes Report standing as a clear indictment of British shipyard operating and management policy in 1966, very little had happened until 1972 to incorporate those internal changes that the Shipbuilding Inquiry Committee deemed necessary.

Predictably, problems with late delivery had worsened. By 1971 less than half of British vessel deliveries took place on time. In an international industry where delivery punctuality was arguably the most important measurement metric, British shipbuilding's continuing failure to correct this problem was critically damaging. The problem was exacerbated by the fact that Britain's primary competitors, such as Sweden and Japan, had "particularly good delivery reputations." As the BAH Report stated, "Shipowners report that poor delivery is one of the major reasons for them purchasing in overseas shipyards, where delivery is significantly better."[293]

[290] Ibid., p. 167
[291] Ibid., p. 168.
[292] Ibid., p. 116. This specific comment is about marketing.
[293] Ibid., p. 102

Table 16: SUMMARY OF THE U.K. INDUSTRY DELIVERY RECORD 1967-1971[294]

Delivery	Per Cent of All Deliveries
One or more months late:	39
Two or more months late:	30
Three or more months late:	21
Six or more months late:	9

The problem with late delivery was even worse on larger ships such as tankers. British yards were particularly bad at delivering these vessels on time. Due to the 1967 Suez Canal closure spawning a demand for these increasingly massive vessels, they were taking up a much greater share of the market than before. In doing so they were making an already difficult situation for British shipyards much harder.

Table 17: TONNAGE CHARACTERISTICS OF DELIVERED VESSELS 1967-1971 ('000 DEADWEIGHT TONS PER VESSEL)[295]

Year Delivered	Oil Tanker/Oil-Bulk-Ore	Bulk Carriers	General Cargo/Reefer/Container	Other	All Ships
1967	51.0	43.2	11.8	1.1	19.6
1968	68.0	49.6	12.3	2.7	25.3
1969	26.7	34.8	14.2	2.4	18.9
1970	98.4	31.0	16.4	3.5	30.5
1971	89.0	37.9	15.4	8.4	33.2
1967-1971	71.9	39.0	14.0	2.8	25.2

As mentioned earlier, the British method of shipbuilding with its lack of planning and dependence on craft-level initiative was not well suited to dealing with larger vessels and long production runs. The BAH Report showed that the situation was not

[294] Ibid.
[295] "British Shipbuilding 1972," p. 100.

improving and that the only shipbuilders consistently delivering on time were those dealing with smaller vessels. In fact, when judged by tonnage delivered, only 30 per cent of British shipbuilding tonnage was delivered on time.[296]

Revisiting the issue of labor relations, politics, economics and technology were on a collision course with regard to the successful modernization of the British shipbuilding industry. From a strictly political point of view, it has to be remembered that much of the impetus for Government aid to the industry was to avoid or reduce the effect of unemployment in economically disadvantaged areas of Britain such as the old shipbuilding industrial districts.[297] The Shipbuilding Inquiry Committee Report was commissioned at least partially because the political costs of high unemployment in those predominantly Labour districts were too high for a Labour Government to tolerate without taking action. There was no doubt but that the demise of labor-intensive shipbuilding in already depressed places like Clydeside, Merseyside, Belfast and Northeastern England was going to mean a major increase in unemployment.

A review of shipbuilding economics showed that more than 60 per cent of total vessel cost was expended on component parts purchased elsewhere and assembled at the yard. Costs for those parts were not under shipyard control. A shipyard's negotiating position with its vendors is delicate and varies with a vendor's assessment of its potential volume of future business with that yard. As the Geddes Report recognized,

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[296] Ibid., p. 102

[297] Wyn Grant and Stephen Wilks, "British Industrial Policy: Structural Change, Policy Inertia." Journal of Public Policy Vol. 3, No. 1, Industrial Policies in OECD Countries, (Feb. 1983), 17. Writing in 1983 during the Conservative Government of Margaret Thatcher, the authors noted that "much of the aid directed toward declining industries is not really intended to 'prop up' those industries, but rather to aid the process of adjustment so that the inevitable social costs are spread over a longer period."

larger customers generally wield greater influence with suppliers and vendors, such influence usually resulting in lower prices.

That said, in a highly inflationary environment such as the late 1960's and the entire 1970's presented, vendor price flexibility was of necessity extremely limited where it existed at all. The vendors were operating in the same inflationary environment, which is one of the reasons that the Geddes Report proposal for British steel manufacturers to provide below-market steel to shipyards came to naught. Given manufacturers' normally slim operating margins and the prevailing uncertainty about future raw material and labor costs, few manufacturers of any stripe dared risk providing discounts that might put them closer to the brink of insolvency. It should also be noted that many vendors and suppliers had been forced to absorb losses without compensation in earlier shipyard failures.[298] Consequently, shipyards could look for few savings to be garnered from procurement despite the fact it was the major financial expenditure for any given vessel.

With little hope of cost savings on the equipment and supply front, from an economic standpoint the most promising place remaining to seriously cut spending was labor expenditure. The BAH Report recognized that labor expense was "the most important directly controlled cost in the shipyard."[299] As such it was the logical place for management to look for retrenchment economies. However, with labor relations already poor and apparently worsening, any management effort attempting to make unionized shipyard workers redundant was a course fraught with peril. It was certain

[298] Foster and Woolfson noted that several of the shipyards which eventually comprised Upper Clyde Shipbuilders were prime example of this tendency to leave vendors with unpaid invoices.
[299] "British Shipbuilding 1972," p. 80.

that the shipbuilding labor unions would fight back with every public and private weapon in their arsenal.

In one highly publicized 1972 instance of industrial action, after hearing that Upper Clyde Shipbuilders was going to be liquidated workers seized several of the facilities and declared a "work-in."[300] One of the workers' arguments in the Upper Clyde Shipbuilders "work-in" was that workers had "the right to work." While this "right" may have come as a surprise to classical economists, the Communist shop stewards leading the UCS "work-in" found little difficulty in managing wide acceptance of this position by a British public long steeped in the "full employment" rhetoric of post-WWII Britain.[301]

Through adroit internal personnel management and masterful handling of their external public relations, the shop stewards and their allies succeeded in pressuring Edward Heath's Conservative administration into a "U-Turn" with regard to providing government support for Upper Clyde Shipbuilders. The reality that Upper Clyde Shipbuilders was poorly run, unsuitably located, cobbled together of mismatched, obsolescent shipyards and hemorrhaging government money counted for little or nothing in the public relations battle. The loss of jobs was what resonated with the British public. This episode clearly showed that reducing jobs or workers' benefits was bound to bring an avalanche of public and press criticism crashing down on both

[300] The "work-in" was a job action initiated by the UCS workers in which they refused to allow the facilities to be disrupted by liquidators and continued working without pay to complete the yard's in-progress projects. This was done after the Conservative Government in London definitively rejected emergency requests for additional liquidity funding.

[301] The Beveridge Report first called for full employment in 1942 and Beveridge elaborated on the concept with a book written in 1944, Full Employment in a Free Society. The principle was adopted by the Labour Party, which moved to fulfill the requirements of the Beveridge Report after its landslide election in 1945 and was reaffirmed by the Conservative Party in its 1950 Manifesto. By the time of the UCS Work-In, Britons had been governed for 30 years by a political system effectively committed to full employment.

shipyard management and any British Government that supported reductions. With shipowners having made very clear their belief that poor industrial relations was a major factor, if not the major factor, in late deliveries, such bad publicity was the last thing shipyard managements needed.[302]

INCOMPATIBLE GOALS: PROFITABILITY AND JOB RETENTION

While the loss of shipbuilding jobs caught the attention of the British public, what was not publicized was that job losses were inevitable no matter what happened with the British shipbuilding industry. Profitability with employment at 1972 manning levels was not achievable under any realistically expected amount of British shipbuilding work. British Shipbuilding 1972 analyzed the anticipated labor demands for British shipyards and found no circumstances that permitted the same number of shipyard employees and also achieved shipyard economic profitability. This posed both a political and an economic dilemma for the British Government, which was trying to reconcile two mutually incompatible goals within its industrial policy for shipbuilding.

First, the BAH Report stated that the only way for British shipyards to successfully compete internationally was for them to become more efficient. Increasing efficiency to the levels attained by their foreign competitors could not be done without a great deal of capital expenditure on both labor-saving machinery and infrastructure modernization. No British shipyard had enough money to manage these changes privately. The only way the required labor-saving machinery and infrastructure

[302] Foster and Woolfson, "UCS Work-In.," p. 75.

modernization could be done was through Government intervention and subsidy. This was acknowledged both by the Geddes and BAH Reports.

However, if the Government provided the money for the new machinery and modernization, shipyards implementing the new technology would need fewer workers, thus negating a major part of the government justification for the subsidies. A British government providing large subsidies to increase shipyard productivity was politically acceptable under certain conditions. Those conditions did not include having the industry, particularly those sections in private hands, simultaneously make thousands of workers redundant. That highly visible combination of business subsidy and labor redundancy would exact a high political price from any party since it looked far too much like a gift to British shipbuilders at the expense of both British labor and the British taxpayer. This left the British government dealing with a situation quite clearly delineated in the 1972 Hill Samuel Report assessing the viability of Govan Shipbuilders. It was specifically written of Govan but, with only slight changes in degree, equally applicable to all of Britain's merchant shipbuilders. The pertinent comment went as follows:

> In our view there can be no question of the establishment of Govan Shipbuilders, in accordance with this Report, being a proposition which could attract commercial support. The decision whether or not to establish it must, therefore, be judged on other considerations.[303]

It was a tactfully put statement that called for the British government to ask itself how much it was willing to spend to subsidize unprofitable shipyards when their closure would mean mass unemployment in already economically depressed areas. There was

[303] Hill Samuel Report (1972). Shipbuilding on the Upper Clyde: Report of Hill Samuel & Co. (London: HMSO, 1972)

really no way for a Conservative administration to deal with this open-ended conundrum without violating their stated general principles of free trade and free markets. Ideologically opposed to subsidies and considering nationalization anathema (despite having nationalized in 1972 the aerospace parts of a failing Rolls-Royce to save them from liquidation), they were damned no matter what they did, or did not, do. Caught between the Scylla of their own policies and the Charybdis of the short-term effects of those policies, in the event they pumped in massive sums in subsidy all the while proclaiming that no more funds would be forthcoming and the industry would soon have to stand on its own.[304] It would take a Labour Government to break the impasse. However, external events over which Britain had no control were about to cause the entire worldwide shipbuilding industry to undergo a paradigm shift.

[304] Such utterances were not reserved only to Conservative Governments; Labour Governments said them as well. As was shown by the repeated subventions provided to the industry even after such statements, neither Labour nor Conservative administrations was willing to face the dire short-term political consequences of a failure to intervene. Not until Margaret Thatcher's Conservative administration was a British government finally willing to take on that difficult task. It can certainly be argued that Mrs. Thatcher's government did so because the United Kingdom was in such dire financial straits they could not afford to do otherwise.

NATIONALIZATION AND COLLAPSE

The BAH Report was published in May of 1973 and a Labour Government was returned to power in February of 1974. Labour arrived in power with a stated determination to nationalize the shipbuilding industry and eventually did so with the passage of the Aircraft and Shipbuilding Industries Act of 1977. Their timing could hardly have been worse, as they nationalized the industry in the face of the worst shipbuilding slump since the 1930's. The circumstances prevailing in world shipbuilding at the time guaranteed there would be massive losses for British shipbuilders; the only real question was just how large they would be.

When Harold Wilson reentered 10 Downing Street in February 1973, the Arab oil embargo was just about to end.[305] Its effect on world trade, however, was just beginning. The oil embargo, which caused a 400 per cent increase in price (from $2 to $8 per barrel), shocked the industrialized world into recognizing its vulnerability to the caprices of foreign oil suppliers. A second oil crisis, in 1979, brought the cost of oil to almost $40 per barrel and indelibly imprinted the lesson.[306] Businesses world-wide quickly realized that cheap oil was a thing of the past and they had only two choices: become more energy efficient or close their doors. Long queues for gasoline and steeply higher prices for home heating oil had also forcefully driven the point home to the average consumer. Conservation immediately became the order of the

[305] The Organization of Arab Petroleum Exporting Countries (OAPEC), whose major members were Islamic states surrounding the Persian Gulf, undertook to drastically reduce output in reaction to the pro-Israel stance taken by the West and Japan in the 1973 Yom Kippur War between Israel and a coalition of Arab states. The embargo began in October 1973 and lasted for five months.

[306] The second oil crisis began in late 1978 when almost 75% of the Iranian oil output was curtailed due to politically motivated strikes at Iran's oil refineries. These strikes aimed at bringing down the Iranian government led by the Shah of Iran. The Shah and his family fled Iran in early 1979 and he was eventually replaced by the Ayatollah Khomeini. Iranian production depended to a large degree on foreign oil workers and many of these fled the country during the chaos caused by the political transition. It took most of a decade for Iranian oil production to again reach its previous level.

day in the developed world, manifesting itself in lowered house and office temperatures, additional insulation, double-glazed windows, car pools, smaller cars and lower driving speeds. Intensive energy efficiency assessments revealed a great deal of energy wastage; its newly heightened cost gave consumers a strong financial incentive to find and eliminate it. Both consumers and governments responded with alacrity. The resultant drop in oil demand shattered the tanker market, all but collapsed the dry bulk and container markets and forced freight rates into free-fall as world trade slowed drastically.

Table 18: THE IMPORTANCE OF TANKERS IN SHIPBUILDING[307]

As of Last Day of	Tanker Tonnage on Order (million deadweight tons)	Percentage of All Shipping Tonnage on Order	Percentage of Existing Tanker Fleet (in previous July)
1971	45.31	54.2	47.1
1972	57.75	66.8	54.9
1973	97.56	75.7	84.6
1976	17.12	32.5	10.2
1977	10.28	30.0	5.9
1978	6.59	25.5	3.8
1979	8.75	30.9	5.0
1980	9.83	28.4	5.6
1981	7.17	20.3	4.2
1982	4.81	16.5	2.9
1983	5.01	15.4	3.2
1984	5.62	18.3	3.8

[307] Todd, "Industrial Dislocation," p. 6. Data is taken from various *Lloyd's Register Annual Reports.*

Given the tremendous percentage of worldwide shipbuilding work that had been dedicated to tanker construction, such a drastic drop in demand was bound to be a serious blow. Combined with the major reduction in total world trade, which affected new construction of every kind, it was devastating. World shipbuilding hit its apogee at 34,203,000 tons in 1974 on the strength of orders placed before the October 1973 Arab oil embargo. From that point total delivered tonnage would decline in absolute numbers every year until 1983, reaching its low point in 1980 at 13,101,000 tons (See Table 1). Delivered tonnage would not again surpass 20 million tons until 1992.

The drastic decrease in tanker production drove shipbuilders worldwide into frantic efforts to expand their building competence as they desperately fought to garner some share of what little shipbuilding work remained. This was particularly true for Japanese shipbuilders, who had been far and away the industry leader in tanker construction and whose order books plunged commensurately. Having a desperate Japanese shipbuilding industry turn its world-dominant prowess to new sectors of the industry meant very bad news for the current suppliers of those sectors. Then, just in time to make a crushingly bad situation even worse, world shipbuilding capacity became considerably larger with the emergence in 1972 of strong and well-subsidized competition from newly industrializing countries such as Brazil, Taiwan and South Korea. From 1975 on, shipbuilding became a war of national subsidies.

During the Conservative administration of Edward Heath, the Labour Party had engaged in close and intensive consultation with the Trades Union Council and the Confederation of Shipbuilding and Engineering Unions about the future structure of Britain's shipbuilding industry. Their consensus opinion

was that nationalization was an absolute necessity if the industry was to be preserved. The three parties published a pamphlet in 1973 entitled Nationalisation of Shipbuilding, Ship-repair and Marine Engineering. They cited five main justifications for nationalization:

1) No other industry had failed to increase its absolute output for 25 years in a period when world output had grown fourfold;
2) No other industry, with the exception of the aircraft industry, had received so much public finance and support, and shipbuilding would continue to need that support;
3) Few other industries had failed to modernize and re-equip to the disastrous degree of shipbuilding and ship-repairing;
4) The history of labor relations in the industry, despite recent improvements, had been poor;
5) The coming few years would continue to be difficult for shipbuilding internationally, the industry needed a clear and firm national strategy, and this could only come from a nationalized shipbuilding organization.[308]

They were certainly correct in their prediction that British shipbuilding would continue to need government support. Mr. Tony Benn, the new Labour government's Secretary of State for Industry, barely had the chance to organize his office before he was dealing with several major crises in the industry. First, Court Line, which owned the Doxford & Sunderland shipyard on the Wear and Appledore Shipbuilding in Devon, found itself facing critically severe financial difficulties. Trading in Court Line shares was suspended in June 1974 and there was a serious threat of bankruptcy.

[308] Joint Working Party of the Labour Party, Trades Union Council and Confederation of Shipbuilding and Engineering Unions, Nationalisation of Shipbuilding, Ship-repair and Marine Engineering. (London: Labour Party, 1973). Cited in Hogwood, "Government and Shipbuilding," pp. 192-193.

Hansard records that, "On 19 June Court Line directors had approached the Department of Industry asking the Government for urgent financial assistance to avoid a complete and imminent collapse."[309] Forced by severe time constraints into a quick decision, Mr. Benn's Department of Industry followed the proclaimed Labour policy and announced that the Government would take the shipbuilding and ship-repairing segments of Court Line into public ownership. In the end, the Government paid £16 million to nationalize them.[310]

Second, Harland and Wolff once more came back to the Government asking for more money to cover losses. Harland and Wolff stands as the classic example of British shipbuilding's post-1960 combination of poor performance and bad luck. Specifically reconfigured in the mid-1960's to build tankers of up to 1 million deadweight tons, it should have thrived during the 1967-73 large tanker boom. Instead, due to the typical British shipbuilding problems of high costs, low productivity, poor labor relations[311] and late delivery, it lost money even with a full order book.[312]

In fact, just as Cammell Laird had previously done, Harland and Wolff in late 1974 ended up paying a customer, Maritime Fruit Carriers, a considerable sum to cancel three already-accepted contracts for VLCC tankers.[313] Harland and Wolff took this action for the same reason: due to inflation and delay penalties they faced a major

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[309] Hansard, House of Commons Papers, Session 1974-5, HC 498, "Fifth Report of the Parliamentary Commissioner for Administration," p. 17.
[310] Johnman and Murphy, "British Shipbuilding," p. 204. The Government only actually had to pay £8 million in the end as it turned out that Court Line's other subsidiaries owed the shipbuilding and ship repairing sections of the business £8 million."
[311] Harrison, "Industrial Organization," p. 195. In February 1973 H&W's steelworkers began industrial action which eventually resulted in their complete dismissal on 6 April 1973. While a tentative settlement permitting work resumption was agreed on 11 June 1973, full cooperation was denied by the steelworkers and productivity for the year was only about two-thirds of the anticipated amount. This led directly to the financial problems which almost put the yard into receivership in May 1975.
[312] Hansard, House of Lords Debates, 01 May 1975, HC 360, cc 51.
[313] Hansard, House of Commons Debates, Session 1974-5, 08 May 1975, HC 891, cc 1765.

financial loss if they constructed the vessels for the agreed price.[314] Mr. Robert Bradford, MP for Belfast South, represented many Harland and Wolff workers and was very familiar with the yard's problems. Bradford stated the shipyard's own workforce openly admitted that, in addition to 50% overstaffing[315], "most contracts are a year late, Harland and Wolff takes three times as long to produce a vessel as a foreign yard, and there is a lack of flexibility."[316] While he knew how important Harland and Wolff was to Northern Ireland in general and his constituents in particular, he also knew the yard must soon address and resolve its issues since it could not indefinitely continue on subventions from the British taxpayer.

After 1973, with the market for large tankers having all but vanished, Harland and Wolff was also faced with finding work in other sectors of the industry. In this hunt for the remaining scraps of shipbuilding work they too were competing against the entire world and trying to do so with a much worse track record than Japanese yards. Harland and Wolff's management had promised profitability by 1973 but it quickly became obvious the shipbuilding slump had taken them by surprise. Consequently, their estimates proved to be seriously mistaken.[317] Rather than a return to profitability, Harland and Wolff's 1973 operations required the Government to allocate £38 million in loss provision funding.

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[314] Ibid., 02 July 1975, HC 894, cc 439W-440W. See also Harrison, "Industrial Organization," p. 198 for further information.
[315] Ibid., 08 May 1975, HC 891, cc 1767. MP William Craig noted that "a team which was sent out from Belfast to a Swedish shipbuilding yard came back and reported that that Swedish yard, with half the labour force, had twice the output of Harland and Wolff. But from that time on there does not seem to have been any real change in the structure and organisation of Harland and Wolff."
[316] Hansard, House of Commons Debates, Session 1974-5, 01 August 1975, HC 896, cc 2500-2501.
[317] Hansard, House of Commons Debates, Session 1974-5, 01 August 1975, HC 896, cc 2504.

Table 19: COMPARISON OF DELIVERED TONNAGE/PERCENTAGE OF WORLD OUTPUT, SELECTED COUNTRIES, 1974-1983 ('000 Gross Tons/%)[318]

Year	United Kingdom	Japan	South Korea	World
1974	1198/3.6	16894/50.4	313/0.9	33541
1975	1170/3.4	16991/49.7	410/1.2	34203
1976	1500/4.4	15868/46.8	814/2.4	33922
1977	1020/3.7	11708/42.5	562/2.0	27532
1978	1133/6.2	6307/34.7	604/3.3	18194
1979	691/4.8	4697/32.9	495/3.5	14289
1980	427/3.3	6094/46.5	522/4.0	13101
1981	212/1.2	8400/49.6	929/5.5	16932
1982	434/2.5	8163/48.5	1401/8.3	16820
1983	496/3.1	6670/41.9	1539/9.7	15911

Parliament was vocally unhappy about this turn of events, which they attributed to the private management of Harland and Wolff.[319] They forced the resignation of the yard's managing director, Mr. Ivor Hoppe, who had been receiving an annual tax-free salary of over £78,000.[320] Due in large part to the magnitude of its business losses and the obvious necessity of revamping management, in March 1975 the Secretary of State for the Northern Ireland Office, Mr. Stanley Orme, declared that the British

[318] Table compiled from statistics taken from Lloyd's Register of Shipping's "*World Fleet Statistics*" (now published by IHS Fairplay), 11 October 2010.
[319] Hansard, House of Commons Debates, Session 1974-5, 08 May 1975, HC 891, cc 1770-1771. There was debate in the House about whether the private management had exacerbated a long strike through a wage freeze and whether or not the managing director, Mr. Ivor Hoppe, had benefited financially because of that strike. Hoppe was particularly unpopular with Ulster MPs.
[320] Hansard, House of Commons Debates, Session 1974-5, 13 Mar. 1975, HC 888, cc 792-793, 01 August 1975, HC 896, cc 2504-2506. The Commons had good reason to be concerned with Mr. Hoppe's salary. His successor earned an annual salary of £10,000. In addition to his salary, Mr. Hoppe also had a home and 42 acre farm specially built and provided for him in Northern Ireland at Government expense.

Government was going to increase the 47.6% equity stake it already held in Harland and Wolff to a "substantial majority."[321] When the review of Harland and Wolff accounts necessary for this action had been completed in November 1974, it was discovered that £22 million more would have to be provided to cover the firm's obligations.[322]

After discussions with the yard's unions, management and customers, in keeping with its stated nationalization policy the Labour Government announced in March 1975 that Harland and Wolff would be taken completely into public ownership.[323] The Government deemed this the only way to "ensure that the necessary financial reconstruction is undertaken."[324] This action was accomplished through the Shipbuilding Industry (No. 2) (Northern Ireland) Order, which was approved by Parliament on 5 August 1975.

Prior to the passage of that Order, due to the urgent necessity of providing immediate financial assistance to Harland and Wolff there had been an interim bill presented to Parliament. This legislation, Shipbuilding Industry (Northern Ireland) Order, 1975, was presented on 8 May. During the debate on this Order in the Commons, the Secretary of State for Northern Ireland presented the case in stark terms: "For the yard

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[321] Hansard, House of Commons Debates, 26 March 1975, HC 889, cc 498. This statement came from the Northern Ireland Office because the U.K. Government in London had taken direct rule of Northern Ireland via the Northern Ireland Act of 1974. This action was taken in response to the ongoing sectarian strife in the Province. Orders-in-Council are the normal method of enacting governmental directives in such situations.

[322] Hansard, House of Commons Debates, 26 March 1975, HC 889, cc 497. Part of this money was the payment to Maritime Fruit Carriers for the three cancelled VLCC contracts.

[323] Ibid.

[324] Hansard, House of Lords Debates, 5 August 1975, Vol. 363, cc 1469. Lord Donaldson elaborated on this position by saying, "So long as the Northern Ireland Department of Commerce holds only a minority of the shares the Government could not embark—even with the full co-operation of the company which it would expect to enjoy—on plans for financial reconstruction with confidence that they could be effected."

to be kept open and given a chance to survive financial help must be provided now. The company will need funds by the end of May. If the Order is not made tonight the yard will immediately close." Facing such a drastic situation, the Commons once again chose subsidies over unemployment and passed the Order.

During the debate in the House of Lords over the Shipbuilding Industry (No. 2) (Northern Ireland) Order, the Parliamentary Secretary of State for the Northern Ireland Office, Lord Donaldson, quite candidly explained why this Order needed to be approved:

> The reason why the Government propose this enormous injection of new money is basically simple. Harland and Wolff is the largest single employer of male labour in Northern Ireland and it is perhaps difficult for us to imagine the possible repercussions if the firm were to close. Immediately, we would have 10,000 men, about 6 per cent of the male labour force in the Belfast area, out of work with the prospect of relatively few finding other jobs. I would remind your Lordships that male unemployment in Northern Ireland is already approaching 11 per cent.[325]

In the earlier House of Commons debate, Mr. Gerry Fitt, the Catholic Social Democratic and Labour Party MP from Belfast West, bluntly stated,

> . . . the Belfast shipyard is no ordinary shipyard. It has an exclusiveness all its own, by virtue of the fact that it is situated in Northern Ireland and because of the political situation. My right hon. Friend the Minister of State mentioned, during the course of his remarks this morning something that we have known for a long time in Northern Ireland, namely, that the Belfast shipyard has been kept going and kept in existence because of political considerations. That has to be admitted. We in Northern Ireland have known that for quite a long time. . . . the Belfast shipyard is being treated as a separate entity. It bears very little relationship to other shipyards in other parts of the

[325] Hansard, House of Lords Debates, 5 August 1975, Vol. 363, cc 1465. What went almost unmentioned in this debate was how that additional amount of almost completely Protestant unemployment might have affected the security situation with regard to the internecine warfare between Northern Ireland's Protestants and Catholics. The Government opinion was that it could do nothing but signally worsen an already bad situation.

> United Kingdom. Had it not been for the political situation in Northern Ireland, I am convinced—and my right hon. Friend has confirmed my impression—that the Belfast shipyard would have closed.[326]

Fitt was simply stating an acknowledged but uncomfortable truth about Northern Ireland's exceptional place in British politics. In the event, no MP disputed Fitt's assertion and the Order was duly accepted. Once again, social considerations in Northern Ireland had overridden economic realities to the benefit of Harland and Wolff.[327]

Dealing with those considerations, however, was proving to be increasingly expensive. In this Order the Government agreed to lend or grant another £60 million to the shipyard in addition to a partial dismissal of earlier loans. With this subvention, between 1966 and 1979 the Government had pumped more than £119 million of special assistance into Harland and Wolff.[328] Including another £23 million in standard shipyard assistance given to Harland and Wolff, the total amount of government funding was actually £142 million.[329]

Third, and possibly the worst disappointment to hit the British shipbuilding industry in the 1970s, was the Maritime Fruit Carriers (MFC) debacle. Maritime Fruit Carriers was an Israeli company that was almost singlehandedly responsible for the boom in British-ordered ships in 1973. They ordered six 333,000 ULCC tankers from Harland and Wolff and thirteen ships from Swan Hunter with an option for 13 more.[330] They also ordered two 260,000 VLCC tankers from Scott Lithgow. By 1975, 35 per cent of

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[326] Ibid.
[327] Hansard, House of Commons Debates, Session 1974-5, 01 August 1975, HC 896, cc 2494.
[328] Ibid., cc 2475. The Minister of State for the Northern Ireland Office, Mr. Stanley Orme, was quite straightforward about the amounts of money that had been pumped into Harland and Wolff.
[329] Ibid.
[330] Hogwood, "Government and Shipbuilding," pp. 186-7.

all tonnage ordered in British shipyards was for Maritime Fruit Carriers or directly related subsidiaries. [331]

Unfortunately for both Maritime Fruit Carriers and the British shipbuilders working with them, MFC was highly leveraged financially.[332] Their continued economic viability was contingent on two separate factors. The first was a continuing rise in the used ship market to enable them to sell some of their older vessels at a profit. The second was that the tankers they were having built would quickly be profitably employed so as to provide funding for the remaining vessels under construction. Both of these assumptions proved faulty as a result of the shipbuilding slump. When the demand for tankers collapsed, Maritime Fruit found itself with an unserviceable debt of more than $380 million and a group of large tanker assets they could neither sell nor productively employ.[333] From 1974 on they were struggling to keep the receivers at bay and by 1976 they were bankrupt. Prior to that they had three of the six Harland and Wolff vessels cancelled as well as nine of the 13 optional Swan Hunter vessels. The remaining two Harland and Wolff ULCCs were completed, but for another buyer.[334] The British Government, which had guaranteed funds for the construction of the vessels built in British yards, ended up seizing six Maritime Fruit Carriers vessels.[335] The two VLCCs built at Swan Hunter for MFC were completed but purchased while under construction by another buyer.

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[331] Hansard, House of Commons Debates, Session 1975-6, 12 February 1976, HC 905, cc 385W. Information provided in response to written Parliamentary question by Secretary of State for Trade and Industry Mr. Gerald Kaufman. Mr. Kaufman stated Maritime Fruit Carriers had orders amounting to 35 per cent of the total British order book of 4,947,000 gross tons, or 1,731,450 gross tons.
[332] Wilkins, Christopher and Hill, Peter. "How Maritime Fruit Carriers Went Adrift" The Times (London), 5 July 1976: 17.
[333] Ibid.
[334] Harrison, "Industrial Organization," p. 198. These vessels were purchased by a Texas organization that refused to accept them at delivery claiming they were unseaworthy. Harland and Wolff took the case to arbitration, where they finally prevailed in 1979.
[335] Hansard, House of Commons Debates, Session 1975-6, HC 916, cc 86-7W.

With the collapse of Maritime Fruit Carriers the order books of British shipyards were beginning to look very thin by 1975 and the Government was hearing more calls for nationalization. The Government was already well on its way to that goal, as by August of that year the portfolio of nationalized shipyards included Harland and Wolff, Doxford and Sunderland, Appledore, Govan and part of Cammell Laird. Intending to complete the task, the Labour Government put forward the Aircraft and Shipbuilding Industries Bill in late April 1975 to nationalize the remainder of Britain's shipbuilding and shiprepairing industry.[336]

The Bill had a long and extremely contentious passage through Parliament, being bitterly debated in the Commons and rejected three times by the House of Lords.[337] After almost two years of delay the Bill's passage was still being stymied by a Conservative opposition adamantly opposed to nationalization. Only after the Labour Government agreed to remove ship repairers from the bill was it passed, receiving the Royal Assent in March 1977. It established a new corporation, British Shipbuilders, as the oversight management company with the various shipyards and companies cast as subsidiaries.

More indicative of the future than this Bill was the establishment in February 1977 of a Shipbuilding Intervention Fund of £65 million "to assist the yards in Britain to

[336] Ibid., p. 192-193

[337] Ibid. The Bill set a House of Commons record by being 58 days in committee. At one point during the Commons debates, a Labour Party whip engaged in a pairing arrangement for a critical division was instructed to break it and vote for the bill. This allowed its passage by one vote. This egregious violation of Parliamentary custom thoroughly outraged the Conservative opposition, which actually broke off all communication with the majority party. The imbroglio was only resolved after face-to-face discussions between the Prime Minister, Harold Wilson and the Leader of the Opposition, Edward Heath. It was agreed by them that the vote would have to be redone.

obtain orders"[338] as well as "a redundancy scheme similar to that for the British Steel Corporation."[339] The £65 million was to be provided as grants to "suitable" shipyards. This, of course, was an open admission that for British yards to obtain any work at all would require government subsidization. Worse, the announcement of the redundancy scheme in the same Parliamentary debate clearly showed the government's belief that even massive subsidies and nationalization could not save a considerable number of Britain's shipbuilding jobs.

Complicating the situation even further was Britain's requirement to live up to the commitments it had made when it joined the European Economic Community in 1973. The position of the EEC was somewhat at odds with itself in that it allowed two apparently exclusive actions to take place: First, countries could "digressively" subsidize merchant shipbuilders in hopes of keeping the industry alive until recovery occurred. However, the EEC also mandated a concurrent reduction in shipbuilding capacity under the assumption that the industry would not survive. Reconciling these two goals was complicated at best and in Britain it had highly damaging consequences for the shipbuilding industry, particularly as the emphasis shifted over time from subsidization to capacity reduction in keeping with the changes in Britain's political landscape.

[338] Hansard, House of Commons Debates, 24 Feb. 1977, Vol. 926, HC 1653.
[339] Ibid., HC 1654. This would become the Shipbuilding (Redundancy Payments) Act of 1978.

Table 20: U.K. SHIPBUILDING ORDER BOOKS 1975-1984 ('000 Gross Tons)[340]

Year	Ships Completed		Order Intake		Order Book Dec. 31	
	Number	GRT	Number	GRT	Number	GRT
1975	134	1201.3	45	66.6	263	4944.4
1976	145	1458.8	109	405.9	207	2945.7
1977	48	754.6	43	389.6	113	1440.4
1978	55	714	41	214.2	98	913.3
1979	54	547	29	313.5	71	655.7
1980	57	405	30	364.6	43	615
1981	25	195.2	45	468.5	63	886.2
1982	32	354.9	26	246.1	56	754.1
1983	33	460.6	11	144	32	375.5
1984	21	232.4	11	55.3	22	215.5

1 July 1977 was the vesting day for British Shipbuilders Corporation. The nationalized entity began with 27 building sites, 66 berths and a work force of More than 87,000 employees, 65,000 of whom were employed in either merchant vessel or warship building.[341] Harland and Wolff, despite being nationalized, was not included in the new organization and remained a separate entity. Britain paid £75 million in compensation to private owners for the Corporation's assets and a considerable amount more in clearing up remaining debts as the intention was to have British Shipbuilders start with zero initial debt. The company had some teething problems concerning where its headquarters should be located and finding appropriate people

[340] Rother, Detlef. The Restructured West European Shipbuilding Industry. (Bremen: Institute of Shipping Economics and Logistics, 1985), p. 93. The chart information is taken from data provided by the Association of Western European Shipbuilders and the Institute of Shipping, Economics and Logistics.

[341] This total excludes Harland and Wolff, which was not taken into British Shipbuilders.

for its staff. However, these were insignificant compared to the truly daunting problem of finding business for its shipyards in the teeth of the worst shipping slump since the interwar years. Gerald Kaufman, Secretary of State for Industry, had stated in February 1977 that "it is a fact that without further orders about half the yards in the British shipbuilding industry will run out of work this year. A very few yards have work running beyond 1978."[342]

The response to this situation in practice was for British Shipbuilders to solicit whatever work they could find to keep the yards employed. This meant they knowingly accepted bids requiring subsidization of work likely to incur very heavy losses.[343] Two such actions in particular were quite politically contentious, acceptance of a Polish order for 28 ships and an Indian order for six cargo liners. British Shipbuilders effectively provided the Poles with 100% credit for this order, something which caused outcry in the Commons as MPs held very serious doubts about whether a penurious Communist country like Poland would even be able to service the debt, much less actually repay it.[344] Moreover, the vessels proposed for construction were to be used in trades which would directly compete with established British shipping companies. Those companies were quite naturally unhappy that huge amounts of British state funding were to be used to subsidize the construction of foreign competition able to undercut their prices because of that funding.[345] As for the Indian order, the £52.8 million in funding for these vessels was to be completely drawn from

[342] Hansard, House of Commons Debates, 24 Feb. 1977 Vol. 926, cc 1661
[343] Johnman and Murphy, "British Shipbuilding," p. 210.
[344] Ibid. 12 Dec. 1977, Vol. 941, cc 53-115. Such full credit funding was highly unusual, particularly for a buyer with questionable credit.
[345] Hansard, House of Lords Debates, 24 Nov. 1977 Vol. 387 cc 1026-31, House of Commons Debates 12 Dec. 1977, Vol. 941 cc 8-10. The opposition Conservatives on 12 December were so unhappy with the performance of the Secretary of State for Industry, Eric Varley, that they proposed a motion to cut his pay by 50%. The motion failed by a vote of 246 to 295. Much of that unhappiness stemmed from the 28-ship "deal" arranged with the Polish Government. The debate on this matter became quite heated.

Britain's annual Overseas Development subvention to India.[346] However, since the cost of the British vessels was higher than what would have been on offer from Japanese yards, the Indian Government objected and asked for the price to be lowered. In the event, Britain provided an additional sum of approximately £2.5-5.0 million to mollify the Indians. As Hogwood put it, "The [British] government was subsidizing a free gift!"[347]

No matter one's position on nationalization of industry, one of the undoubted benefits is that a nationalized industry becomes a public subject with its financial records normally open to public scrutiny. That said, the first set of financial records presented by British Shipbuilders placed the Labour Government in an unenviable position. The Corporation's initial annual report was published in November 1978 and showed a loss of £109 million in the first nine months of operation despite an injection of £46.6 million from the Shipbuilding Intervention Fund. It had quickly become apparent that the Government had not made sufficient allowance for clearing up debt accrued prior to nationalization as £57 million of the loss was due to meeting obligations incurred before vesting day. Nevertheless, it was an ugly record to defend and it was not made easier by the shipbuilding unions announcing in the same month that British Shipbuilding was planning to cut more than 12,000 jobs.[348]

[346] Hansard, House of Commons Debates, 20 Mar 1978 Vol. 946 cc 1175-1176.
[347] Hogwood, "Government and Shipbuilding," p. 201. Hansard, House of Commons Debates, 16 Dec. 1977 Vol. 941 cc 566W.
[348] Hansard, House of Commons Debates, 15 Jan 1979 Vol. 960 cc 1293.

There is no doubt that Labour Governments were concerned for the yards and the workers in the industry.[349] One needs only to read the Parliamentary speeches of Labour Ministers such as Tony Benn and Gerald Kaufman, or backbenchers such as Donald Dixon of Jarrow and Dr. Norman Godwin of Greenock, to see there was an emotional tie with the shipyard workers that the Conservatives simply did not possess. Labour almost certainly would have provided more financial support for the industry had the money been available to fund it. Knowing this it is ironic that that they so badly missed what was the final chance to save British shipbuilding.

Despite the horrifically bad shipbuilding slump after 1974, out of the entire world, British shipbuilders alone were blessed with one last opportunity to diversify into a closely related business and save themselves from the global collapse. From 1970 on, the development of the North Sea's oil and gas resources demanded construction of a great many drilling platforms and offshore supply vessels. With the vast majority of this development occurring in the British sector of the North Sea, the British shipbuilding industry was the clearly obvious choice for supplying the necessary vessels and structures. There was nothing to prevent British Governments from demanding that the required infrastructure be supplied from British shipyards as it was to be used to exploit a British national asset. Britain's shipbuilders could have used the decade of work this huge windfall of offshore construction would have granted them to ride out the shipbuilding slump. It would have allowed them to firmly

[349] It is notable that neither Wilson nor Callaghan had anything approximating the same level of interest in the industry as their ministers and backbenchers, much less the burning concern for it shown by President Chung-Hee Park.

establish themselves as a world leader in what has proven to be an extremely remunerative segment of the energy industry.[350]

It was certainly possible for this to occur. The BAH Report of 1972 actually specifically recommended an emphasis on offshore activities.[351] Some British shipyards had even dabbled a bit in the offshore sector between 1961 and 1969, with five rigs being built at John Brown's Clydebank yard alone out of a total of eleven built in Britain.[352] None of the involved yards, however, seemed to think offshore work was something they were interested in seriously pursuing and all left it as soon as possible to return to regular shipbuilding.

This can only be viewed as a major mistake on the part of both British shipbuilders and the British Governments that were so heavily subsidizing them. Properly developing these oil resources meant there was a huge amount of infrastructure to be constructed in the British sector of the North Sea. Moreover, the Norwegian shipbuilding industry was far from being capable of providing all the infrastructure necessary in their sector. Had the work in both sectors been seriously sought by British yards, a sizable majority of it would have almost certainly been given them as the British Government would have been easily been able to enforce preferential purchasing policies.[353]

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[350] As of 2013, dynamically positioned 6th generation drill ships and semi-submersible drilling rigs delivered equipped and ready to conduct drilling operations generally cost approximately USD 1 billion per vessel.

[351] BAH Report, p. 51, which stated that "*Semi-submersible craft* should be assigned priority [of shipbuilding research]. . . with particular emphasis on offshore drilling, pipe laying and other offshore operations."

[352] Johnman and Murphy, "British Shipbuilding." There were a total of eleven rigs built, with two also being built at Smith's Dock and one each at Swan Hunter, Clelands, Furness and Harland and Wolff.

[353] "Cammell Laird Wins £61 Million Order from Dome Petroleum." The Times (London) 4 June 1981: 17. The article notes that "Dome may have decided to place the contract with a British yard with further exploration licenses in mind."

As it happened, Scott Lithgow in 1978 received a £60 million order from BP for an offshore emergency support platform[354]and an order from Britoil in 1981 for a semi-submersible oil rig at a price of £88.6 million.[355] Cammell Laird also received a semi-submersible order in 1981 from Dome Petroleum with a value of £61 million.[356] These were good contracts at decent prices and adequate performance could have solidly established the British shipbuilding industry in the forefront of petroleum extraction technology. However, just as with the construction of ships, poor planning, late deliveries and industrial action ended up causing the yards involved to lose money on the contracts.

British Shipbuilders, after its initial losses of £109 million in 1977-78 and £110 million in 1978-79 had rebounded to a loss of only £41.5 million in 1979-80.[357] The loss for 1980-81 was the same and British Shipbuilders, initially optimistic about the offshore sector, was predicting there would be zero net loss in 1981-82. However, the company's hopes were rudely dashed as the losses in 1982-83 amounted to £117 million, with offshore losses accounting for £76.8 million of the total. As Table 21 shows, 1983-84 was even worse, with most of the loss being attributable to offshore projects. What could have been a solid lifeline to save Britain's shipbuilding industry vanished in a smothering cloud of poor performance and heavy financial losses. The opportunity for not just survival but resounding success was there for the taking. Unfortunately, as with so many previous chances for British shipbuilders, neither the vision nor the will was sufficient to meet the challenge and it slipped out of their

[354] Hill, Peter. "Scott Lithgow Lands Biggest £60 M Order." The Times (London) 5 August 1978: 16
[355] Hansard, House of Commons Debates, 20 Dec. 1983, Vol. 51, cc 281.
[356] "Cammell Laird Wins £61 Million Order from Dome Petroleum." The Times (London) 4 June 1981: 17
[357] Hansard, House of Commons Debates, 17 Nov. 1981, Vol. 13, cc 191.

grasp. Offshore construction was British shipbuilding's last, best hope--and they blew it.

Table 21: BRITISH SHIPBUILDERS CORPORATION PROFIT (LOSS) BY SPECIALIZATION, 1982-1985[358]

Category of Work	1982-1983	1983-1984	1984-1985
Merchant Ship Building	(85.5)	(49.2)	(59.3)
Warship Building	54.7	43.8	45.5
Engineering	(2.0)	(12.6)	(8.8)
Ship Repairing	(5.3)	(3.7)	(0.8)
Offshore	(76.8)	(100.9)	(3.5)
Other	(2.6)	(38.3)	(1.7)
Total	(117.5)	(160.9)	(28.6)

Note: includes special depreciation provision of £37.9m in 1983-1984.

Since 1960 Britain's shipbuilding industry had been suffering an increasingly severe decline, with the speed of the slide slowed only by ever more expensive government financial intervention from both parties. 3 May 1979 was the day that interventionist policy acquired an end date. The election of Margaret Thatcher and a Conservative Government sounded the death knell for British shipbuilding. Mrs. Thatcher's Government was very much different from the last Conservative Government to deal with the industry's problems. The ideological differences between the Heath and Wilson administrations were minimal compared to those between Mrs. Thatcher and James Callaghan's Labour Government.

Mrs. Thatcher came to office armed with a trained chemist's attention to detail and a successful shopkeeper's concern for sound finances. Britain's poor economic circumstances meant that drastic expenditure reductions had to be made in many

[358] Johnman and Murphy, "British Shipbuilding," p. 214. Chart data derived from the Report by the Comptroller and Auditor General, Department of Trade and Industry, Assistance to Shipbuilders. (London: HMSO, 1986).

places. Shipbuilding stood out as an obvious target for funding cuts because it was extremely costly, unlikely to become profitable in any foreseeable future, and based primarily in Labour constituencies. Mrs. Thatcher was far too shrewd a politician to miss such an opportunity and her eighteen year tenure as Prime Minister meant she was in office long enough to carry her plans through to fruition.

With regard to British shipbuilding, the difference in opinions between the parties could not have been greater. As an example of the Labour opinion, Mr. Gerald Kaufman, Minister of State of the Department of Industry, in 1978 stated the following:

> *The Government's record in saving jobs in the British shipbuilding industry is unrivalled by any other shipbuilding industry in the world, and we are proud of it.*[359]

This is considerably different from what Mr. Robert Atkinson, Chairman of British Shipbuilders, experienced in his 1980 discussion with Sir Peter Carey, Permanent Secretary of the Department of Trade under Mrs. Thatcher's Conservative Government. After outlining his Corporate Plan, which Carey listened to politely, Sir Peter told Atkinson the following:

> *Robert, Margaret wants rid of shipbuilding, remember that.*

With typical British understatement, Atkinson later commented that Carey's response was "not very encouraging."[360] During his tenure as Chairman of British Shipbuilders, he had opposed privatization but had done his best to make the Corporation as

[359] Hansard, House of Commons Debates, 13 Nov. 1978, Vol. 955, cc 2-4.
[360] Johnman and Murphy, "British Shipbuilding," p. 217.

efficient and productive as possible.[361] With that as Atkinson's prime goal, by the end of 1981 British Shipbuilders had considerably diminished in size. While at vesting day in 1977 the Corporation began with 27 building sites, 66 building berths and a work force of more than 87,000 employees, 65,000 of whom were employed in either merchant vessel or warship construction, by 1981 it had 66,000 total employees, 15 building sites, 28 berths, and its engine building companies had shrunk from five to two.[362] Atkinson retired on 1 September 1983 and was succeeded by Mr. Graham Day.[363] Day had originally been chosen by the Labour Government to head British Shipbuilders in 1975. As a result of the long delay in enactment of the nationalization legislation, he eventually declined the position prior to vesting day. However, after having been offered the position once again by the Conservatives, he accepted knowing his remit was to cut the losses at British Shipbuilders and to privatize the warship-building sectors as quickly as possible.

This policy was bitterly opposed by Labour as they knew that the only profitable sections of British Shipbuilders were the warship yards. If they were privatized there was no doubt the merchant shipbuilding rump of British Shipbuilders would quickly drown in a tsunami of red ink.[364] However, the Conservatives could with honesty say that considerably more than £1 billion had been spent between 1979 and 1984 on subsidizing British Shipbuilders, a far cry from the less than £40 million suggested by the 1966 Geddes Report.[365]

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[361] Atkinson, Robert, "Staying Afloat," The Times (London) 7 October 1981: 17. Atkinson wrote a strong letter to The Times in response to an article critical of British shipbuilding published on 21 September 1981.
[362] Ibid., p. 210.
[363] Townsend, Edward. "Major Job Losses and Closures Warning at British Shipbuilders." The Times (London) 2 September 1983: 13.
[364] Hansard, House of Commons Debates, 25 July 1984, Vol. 64, cc 999.
[365] Ibid., The Secretary of State for Trade and Industry, Mr. Norman Tebbit, made this statement.

Having spent such a munificent sum of taxpayer money on shipbuilding subsidization, it was simply not realistic for Labour to attack the Conservative administration on the grounds of not having supported the industry. As the elected government, they had the civil obligation to spend the public's money wisely and, after 1983, could refute Labour's complaints about poor British Shipbuilding management with the fact that they had installed the man Labour originally tapped for the job. Given the generally poor performance of British Shipbuilders, it was certainly legitimate for the Conservative Government to question the usefulness of the large sums expended on them. Moreover, they were justified in doing so from a philosophical standpoint since a major tenet of Conservative thinking is that all government funding used to subsidize a money-losing industry must first be taken by government from a profitable one. The people of Britain had twice freely elected a government with that philosophy, a fact which presupposes the majority of Britons wanted such government at the time. Graham Day in 1985 stated,

> If there was no government support there would not be merchant shipbuilding in Britain. . . .if government said to us, "You must only carry on with those companies which were profitable and stand aside on privatization," we would have no choice but to close all merchant shipbuilders because they are all unprofitable. This has been the case since 1977.[366]

When asked by the Committee if he could envision "a future for British Shipbuilders building only merchant ships," Day replied, "I think the future will be much the same as the past. British Shipbuilders has not made money since nationalization." With the Chairman of British Shipbuilders being on record to Parliament that shipyard subsidization would be necessary for the foreseeable future, it was not surprising that

[366] British Parliamentary Papers (1984-85), Trade and Industry Committee, "British Shipbuilders," Minutes of Evidence, 24 July 1985, p. 33.

the Conservatives decided to divest Great Britain PLC of what they had come to see as a major and incurable financial drain. After eight years of extremely heavy losses it is hard to argue the decision was unjustified.

However, justified or not, the groupings originally envisioned by the Geddes Report were all back in the private sector by 1988. The Robb Caledon shipyard had been closed in 1981. British Shipbuilders had been able to sell Scott Lithgow in 1984 to a group of private buyers led by Trafalgar House for £12 million, thus preventing its immediate closure although its demise was only temporarily postponed.[367] The profitable Yarrow's was sold in 1985 to GEC while Vosper Thornycroft was acquired through a management buyout in the same year. Cammell Laird was sold to Vickers (VSEL) in 1986 after VSEL itself had been privatized in the same year. Swan Hunter was privatized in 1987 while Austin and Pickersgill, Doxford and Sunderland, Govan, Appledore and Harland and Wolff were privatized in 1988. All of these reprivatized yards were mere shadows of what they had been at the time of the Geddes Report with both output and manpower greatly diminished in all cases.

With the privatization of Harland and Wolff and the remaining parts of British Shipbuilders, Britain's days as a volume shipbuilder came to a close. None of the yards that were privatized was successful as a stand-alone merchant shipbuilding facility. This could only have been expected since the only way they had obtained work under nationalization was through massive subsidization, a tactic generally not possible in the private sector. While there is still on occasion a vessel built in one of the few remaining British shipyards, it is almost invariably a warship or naval

[367] Scott Lithgow carried on as an offshore yard for three more years, making major losses and finally ceasing to trade in 1988.

auxiliary, usually for the Royal Navy. The facilities that still exist from Britain's shipbuilding past that are not specifically dedicated to military shipbuilding are relatively small ship repair yards or closed completely. The British Government has stated that the total cost of subsidy for the ten years of British Shipbuilders was £1.85 billion.[368] That sum does not include the £537.2 million in subsidies for Harland and Wolff between 1975 and 1988 or the considerable amount of expenditure prior to 1975 for the P200 modernization program.[369] The cost of the financial effort to save British shipbuilding ran to well over £2.3 billion, a tremendous amount of money expended in an ultimately futile attempt to save the industry. Despite the expenditure of a king's ransom in subsidies, it took only thirty years for British shipbuilding to go from world leader to global irrelevance.

[368] Hansard, House of Commons Debates, 27 May 1988, Vol. 134, cc 638. In that debate the Under-Secretary of State for Trade and Consumer Affairs, Mr. John Butcher, noted that in 1987 "£20,000 was spent for every job in British Shipbuilders. That is a great deal of support."
[369] Johnman and Murphy, "British Shipbuilding," p. 236.

WHY KOREA? THE POLITICS OF KOREAN SHIPBUILDING

Any discussion about the success of the modern Korean shipbuilding industry is incomplete without first mentioning the partnership of the two men who deserve the lion's share of credit for establishing it: Korean President Chung-Hee Park and Hyundai Chairman Ju-Yung Chung. These two men had the vision to see that shipbuilding was an industrial sector in which Korea could have not only have a significant presence but one in which it could become the world leader.

Korea faced a tremendous number of obstacles on its way to world shipbuilding primacy. Reaching that peak was the work of many people who struggled mightily to help Korea overcome those obstacles and attain that pinnacle. Moreover, Korean shipbuilding also had some luck in the timing of its emergence; the rules of the world economy happened to favor Korea's fledgling industry just when it most needed assistance. However, without the decisive actions of President Park and Chairman Chung, Korean shipbuilding primacy simply would not have happened.[370] Those two men led, pushed and sometimes dragged Korea to a position where, when the opportunity arose, the nation had the industrial means to grasp it and the financial strength to hang on until it was fully developed. Preparing for that opportunity took not only decades of assiduous effort but a truly extraordinary combination of foresight, intelligence and raw political and business courage. The path to the top of world shipbuilding was not a smooth or easy one; both Park and Chung certainly had many faults and made many mistakes. That said, despite those faults and mistakes they

[370] Richard M. Steers, Made in Korea: Chung Ju-Yung and the Rise of Hyundai. (New York: Routledge, 1999.), p. 10. Steers has been accused of writing a hagiography of Ju-Yung Chung but his assessment of Chung's importance to Korea's industrial success is in complete accord with that of Donald Kirk, whose book on Ju-Yung Chung was quite critical.

succeeded in accomplishing something that in 1970 would have been considered absolutely impossible. Even their most vehement critics, who are numerous, have been forced to admit that the nineteen-year cooperation between Park and Chung was critically important to creating the modern, industrialized Korea of the 21st Century. Without their contributions, the South Korea that ended the 20th Century as one of the world's most advanced nations would be a very different place.[371]

A LONG AND WINDING ROAD TO POWER

President Chung-Hee Park is the most unusual character in the story of Korean modernization.[372] His personal qualities and life experiences uniquely fitted him for the indispensable role he played in modernizing Korea. Key to Korea's economic development in general and Korean shipbuilding's advancement in particular, Park's leadership is the most critical factor in Korea's progression from agrarian backwater to industrial giant. Without Park deftly manipulating the power and position of the Korean state to provide the economic surplus necessary for industrialization, gifted entrepreneurs such as Ju-Yung Chung would quite probably never have had the opportunity to compete on the world stage.

Henry Kissinger once stated that, once in office, senior political figures must always draw on their prior intellectual background since the pressing challenges of daily national affairs leave little time to increase that store of knowledge. What supported

[371] Stein Ringen, Huck-Ju Kwon, Ilcheong Yi, Taekyoon Kim and Jooha Lee. The Korean State and Social Policy: How South Korea Lifted Itself from Poverty and Dictatorship to Affluence and Democracy. (New York: Oxford University Press, 2011), p. 20. It is clear that the biases of the authors of this work are strongly against authoritarian government and they list many of the deficiencies and shortcomings of the Park regime. Grudging though the admission might be, they do concede that, "Like it or not, [Park] took hold of the nation and steered it forward. The counterfactuals are unknown."

[372] Seungsook Moon, "Cultural Politics of Remembering Park Chung-Hee," Harvard Asia Quarterly, Vol. XI Spring/Summer 2008, 26-44. Park remains a controversial character in Korean history. Moon in this article provides an excellent example of how radically different opinions about Park still remain in Korea.

President Chung-Hee Park's intellectual convictions as he ascended to the pinnacle of Korean power was a thorough understanding of Japan's Meiji Restoration, firsthand experience of watching Japan's Kwantung Army build Manchuria into an industrial powerhouse, and a firm grounding in Korean and Japanese history.[373] Park knew the mistakes of Korea's past and thought they could be used as cautionary tales on the way to a bright future. Equally important were Park's moral qualities of confidence and courage. He had the confidence to believe he both knew and could lead the way forward to a better life for all Koreans, and the courage to risk not only his career, but most probably his life for the opportunity to put his beliefs to the test.

During the eighteen years of Park's rule, the government he led was always authoritarian and arguably dictatorial. It certainly had few internal political constraints on its actions. With the exception of the junta years, during which he was consolidating power, Park's goals were always effectively the nation's goals. His insistence on industrialization combined with his all but unquestioned governmental authority to allow specifically focusing the nation's energies on advancing this issue. Because the Korean governmental structure permitted him such tremendous power, Park was able to guide the Korean economy in a way no British prime minister could possibly manage short of a major and immediate danger to Britain's continued existence as a nation. Because Park's beliefs and actions are so critical to this story, a digression to explain Park's background is in order.

Born in 1917, Chung-Hee Park was the youngest son of an impoverished member of the *yangban*, the Korean hereditary ruling class. His father, Seong-bin Park, though

[373] Chung-in Moon and Byung-Jun Joon , "Modernization Strategy," p. 120. See also Lee, pp. 153-154.

the eldest son of his family, had been disinherited for joining the unsuccessful Tonghak uprising against the venal Choson Dynasty rule of Queen Min and King Kojong.[374] To avoid starvation, Seong-bin had then been forced to move his family to a small plot of barely accessible land in his wife's home town, a tiny mountain village named Sangmo-dong.[375] He there spent the remainder of his life in dire poverty. Young Chung-Hee Park was allowed to attend the nearest elementary school, in Kumi, another village five miles away over mountain trails. His daily round trip of ten miles on foot took at least four hours and was often done in rain or snow. Due to the family's grinding poverty, he often had the barest minimum of cheap food to eat for lunch. Occasionally he was forced to go without food at all as his lunch froze in its box on the way to school and there was no way to thaw it once there. As President, Park attributed his diminutive stature to the fact that he was woefully undernourished as a child.[376] However, he did not blame his father for the family's poverty and indeed grew up admiring the fact that he had been willing to take a stand against corrupt government despite the heavy cost. This admiration apparently increased as he grew older.[377] Both his youthful poverty and his father's example had a pronounced effect on his behavior once he attained positions of power.

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[374] Chong-Sik Lee, Park Chung-Hee: From Poverty to Power. (Palos Verdes: KHU Press, 2012), p. 34. Such disinheritance was very uncommon. Lee speculates that it occurred in order to prove to government officials that Seong-Bin had truly acted on his own. Whether Seong-Bin's father actually believed this action was warranted is unknown. What is certain is that had the Park family not acted to formally distance themselves from the rebellious actions of their eldest son, the entire family would have been in serious danger of losing their *yangban* status. Because that status effectively exempted them from taxes, losing it would have had devastating economic consequences for the family and probably impoverished all of them

[375] Ibid., p. 329-331. Lee wrote about visiting Park's childhood home. He noted there is "a seven or eight story apartment building across the street" from it and that "even the top of the apartment building does not reach the level of their house. This shows how steep the Park family's climb was each day to reach their hovel."

[376] Chong-Ryon Kim. Ah, Park Chung-Hee. (Seoul: Chungang M&B, 1997), p. 318.

[377] Lee, "Park Chung-Hee," p. 28.

Chung-Hee Park graduated from the Kumi Elementary School with a very good academic record, one high enough to allow him to be accepted to the Taegu Normal School for education which would eventually lead to a teaching degree. This was an even more difficult situation than the Kumi school since it required Park to live in a dormitory and pay for meals, train trips, shoes, and other school-related expenses. The education was free but for a poor farming family such as Park's, which was almost completely devoid of ways to access hard cash, coming up with even the minimal sums required was extremely difficult. There were several years where Park was late in beginning school simply because his family could not afford the money to pay for him to take the train back to Taegu or pay for the dormitory meals.[378] The cost of those meals was only $3.25 per semester but even this small sum represented a crushing financial burden for Park and his family. He had been accepted into the school ranked 51st in the school's incoming class of 100. However, due to repeated absences and problems caused by his dire poverty his class ranking decreased every year until at graduation he was ranked 69th of the 70 graduating students.

Even though there were extenuating circumstances, this was a very poor record which normally would have precluded any future advancement. Chung-Hee Park had decided while still a boy that he wanted to be a military officer. Unfortunately, his poor academic performance at Taegu Normal made that aim impossible through normal channels. However, Park did have one branch of study at Taegu Normal in which he excelled and it proved to be critically important for his future. He was a superb performer of military arms drills. Park was so good at them that he became a favorite of the Japanese drill master at Taegu Normal, Col. Arikawa Kazuichi. All

[378] Ibid., p. 64. Park missed no days his first year at Taegu Normal School but his record grew worse as his education continued. He missed 10 days in his second year, 41 in his third, 48 in his fourth and 41 in his last year. Lee states that with such a record Park was very lucky to graduate.

students had to learn these drills and Kazuichi often used Park to demonstrate proper rifle and bayonet drill performance to the rest of the school.[379] Taegu Normal School had a rifle shooting team, membership of which was selected by Colonel Kazuichi and considered to be a very special privilege. Chung-Hee Park was the only Korean on the team with ten Japanese teammates. He was actually chosen to be team leader during his senior year, a very surprising honor given his poor academic standing and the common Japanese practice of discrimination against Koreans.[380]

After graduation, Park's poor academic record meant there was a very good chance he might not obtain a school posting. He did, however, and was assigned to the town of Munkyŏng, not far from his home village. While Park did well there and was fondly remembered by the townspeople, he had not surrendered his desire to be a military officer. When an opportunity to achieve that goal presented itself in 1939, he leapt at it. After his two year teaching obligation was completed, Park applied for admission to the Manchukuo Military Academy as an officer candidate. Manchukuo was a puppet state comprised of territory seized by Japan from China after the Mukden Incident in 1931. While the last Manchu Emperor, Pu Yi, was the nominal head of state, the country was actually a *de facto* colony run by the Japanese Kwantung Army on behalf of the Japanese Emperor.[381] The elected Japanese Government's writ was quite limited in Manchuria.[382]

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[379] Ibid., p. 60.
[380] Mason, "Modernization," p. 90. Lee also notes that Kazuichi generally disdained both Koreans and Japanese in Korea as not having been good enough to be successful in Japan. Lee's opinion is that Park must have been both extraordinarily good and dedicated to have obtained Kazuichi's approval.
[381] There is no proof that the Emperor desired this; the officers of the Kwantung Army took it upon themselves to seize the three Chinese provinces that constituted Manchuria and consolidate them into a state they could present to the Emperor.
[382] Sadako N. Ogata. Defiance in Manchuria. (Berkeley: University of California Press, 1964), p. xvi. Ogata notes that "The highest official policy makers—cabinet ministers, including the service ministers—generally lacked control over the developments in Manchuria."

Normally Park would not have been considered an admissible candidate for a number of reasons, chief among them his prior academic record and the fact that he was, at 23, three years over the age limit for entry.[383] Still, at least the possibility existed even if it was a terribly slim one and he was not going to let it go past without doing his best to seize it.

Park was well aware that he was asking the Manchukuo Military Academy for quite extraordinary consideration which was highly unlikely to be granted. Consequently, he buttressed his admission application by a somewhat unusual inclusion. He added to the normal forms an "Oath in Blood," a statement written in Park's own blood swearing service unto death for the country. While Park's initial application was "regretfully" declined by the Manchukuo Military Academy, it received some favorable newspaper attention which was seen by his former drill master, Colonel Kazuichi.[384] Kazuichi, who by that time was serving as a senior military adviser to the Manchukuo Government, apparently intervened with the Academy acceptance committee and secured Park's admission in March 1940.[385]

This was unusual but two things worked in Park's favor. First, the Manchukuo Military Academy was formed only in 1939 so, unlike the Japanese Military Academy at Zama, its rules were not yet completely solidified. Second, Japan by this time was already deeply involved in a full-scale war with China and quickly preparing for a second with the Soviet Union. The Japanese Army needed all the junior officers

[383] Lee, "Park Chung-Hee," p. 99. Park had also been forced by parental pressure to marry a woman he had never met and quickly discovered that he did not like. From that marriage Park had a daughter. These facts would have absolutely debarred his acceptance at the Manchukuo Military Academy. Park omitted this information from his application.
[384] Ibid., pp. 104-5
[385] Ibid.

it could produce. A young man with Park's talent, maturity and apparently fervent willingness to serve would have been a welcome addition to the incoming class of Academy cadets.

Kazuichi's confidence in Park was not misplaced. Chung-Hee Park did extraordinarily well in the two years he spent at the Manchukuo Military Academy. He graduated at the top of his class and was honored in front of the entire Academy by the presentation of a gold watch and a special citation, both directly received from the hands of the Emperor of Manchukuo, Pu Yi.[386] His excellent academic performance and high level of Japanese-language competence influenced his superiors to send him to the Japanese Military Academy at Zama, Japan. A small number of outstanding cadets from the Manchukuo Military Academy were permitted this privilege and Park was among them. This allowed Park to complete the normal four-year course provided to Japanese military officers.

Park was an exemplary cadet at Zama. Several of his biographers believe that his training at the Manchukuo and Japanese Military Academies was the most influential factor in his intellectual development.[387] The Japanese Military Academy did its best, which was extraordinarily good, to hammer its graduates into proper warriors and practitioners of the code of bushido.[388] Among the qualities it sought to imbue in its students were fervent Japanese nationalism, fearlessness, loyalty, bravery,

[386] Ibid., p. 126.
[387] Chong-Sik Lee and Kōhei Yukawa, among others.
[388] With regard to what Park would have learned at Zama, courage and self-sacrifice would have been high on the list. Field Marshal Sir William Slim intimately knew the Japanese way of war, having fought them from 1942 to 1945. The most successful British general in World War II's Pacific Theater, Slim wrote a very good history about the Burma Campaign in his book, Defeat Into Victory. He commented that he had seen Japanese soldiers routinely perform acts of bravery in battle that would have earned a British or Indian soldier the Victoria Cross. Having seen too many of their wartime atrocities, Slim did not like the Japanese and it was rare to find him complimenting them. However, as the fair man he was he gave credit where it was due.

decisiveness, respect for superiors, courtesy, benevolence, and frugality. Their teachings definitely fell on fertile ground in Park. He was certainly a far different type of leader than the two generals who succeeded him as President, Doo-Hwan Chun and Tae-Woo Roh. Both of them, once in office, proved unable to resist the allure of the riches proffered to those wielding political power in Korea. It is germane to note that neither attended the Japanese Military Academy, having come of age after Korean independence.

Park, who was awarded medals for bravery during the Korean War[389], was renowned for his asceticism and stringent separation of official and personal affairs.[390] He once severely reprimanded his daughter Geun-Hye (later also elected President of Korea) for having improperly used official transportation. Her offense was having accepted an offer from Park's official chauffeur to drive her to school on a particularly snowy day. Park's predecessor Syngman Rhee, as well as the seven Korean Presidents who succeeded Park, were all involved in financial scandals. However, Park, for all the anger he engendered in his political opponents during his rule, was and still is

[389] Yong-Sup Han, "The May Sixteenth Military Coup," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 38. Han notes that Park was awarded the 충무무공훈상 (Order of Military Merit Ch'ungmu) in December 1950for bravery in the Mid-East Battle which took place that year. He was awarded the 화랑무공훈장 (Order of Military Merit Hwarang) in December 1951 for his service as commandant of the Army Intelligence School and the 충무무공훈상(Order of Military Merit Ch'ungmu) again in 1953 for service as the artillery commander of the Second Corps.

[390] Lee, "Park Chung-Hee," p. 151. Lee recounts an incident shared by one of Park's military duty officers. The officer, P'illip Choe, was assigned as the overnight military duty officer at 총와대(the Blue House), the official residence of the Korean President. Upon being served the evening meal, Choe complained to the cook that the meal, which consisted of a few vegetable dishes with no meat, was insufficient. The cook responded by taking Choe into the kitchen and showing him the dining table which had just been removed from the presidential dining room. That table had exactly the same food as had been served to Choe. From that time on, whenever Choe was assigned as duty officer he ordered hamburgers from a nearby hotel and had them delivered to the Blue House.

considered a "clean man.[391] Park's reputation for honesty and bravery proved critical in his rise to power in Korea.

Park, at the end of his first year at the Manchukuo Academy, had taken a Japanese name, Takagi Masao. While this was a requirement for all Koreans after 11 February 1940, Park took a name far more akin to Japanese than most.[392] This action is indicative of Park's opinion of Japan, a factor which was crucially important to South Korea's economic performance after the war. Many Koreans still retain a great deal of animosity for Japan due to the sometimes brutal treatment received by Koreans under Japanese rule. The widely publicized issue of Korean "comfort women" is just one of a number of seriously contentious matters still affecting Korea's relationship with Japan. Those emotions burned even hotter immediately after independence.

However, even if they were not directly intended to be so, the effects of Japanese colonial rule in Korea were beneficial to the country in many ways.[393] The Japanese Government and Japanese industry invested much capital and provided a great deal of technical expertise to develop Korea's agricultural, mineral and hydroelectric resources.[394] These actions added quite considerably to Korea's economic capacity and gave many Koreans an opportunity to experience the functioning of a modern industry. This experience proved of great use after the war when all the Japanese investment and infrastructure was left in Korean hands.[395]

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[391] Lee, "Park Chung-Hee," p. 150. Lee notes that Park's tenure in office was not without scandal but that none of the scandal ever touched Park or led to any accusations that Park himself benefited financially. The inheritance Park left his surviving children was no more than could have been expected from a person living on the official salary of the Korean President.
[392] Robinson, "Korea's Twentieth-Century Odyssey," p. 95.
[393] Mason, "Modernization," p. 448
[394] Ibid., pp. 74-91.
[395] Ibid., p. 449. Mason notes that "Korean employment in manufacturing increased from 23,000 household heads in 1910 to 440,000 in 1940. By 1944 there were nearly 1,900 Korean engineers and

To understand Chung-Hee Park, it must be realized he came from what Koreans call the "Japanese Generation." This term refers to those Koreans who grew up between 1910 and 1945 and who had never known Korea as anything other than an integral part of the Japanese Empire. "Japanese Generation" members were born into the world as subjects of the reigning Japanese Emperor. They attended schools conducted in Japanese, were often taught by Japanese teachers, studied a Japanese curriculum, saw only Japanese civil and military officials governing the country, and each day recited the Japanese Imperial Rescript on Education which began with a declaration of loyalty toward the Emperor and his family. They would never have seen Koreans in positions of real authority. The "Japanese Generation," grew up with the *hinomaru*, or rising sun, flag as their national emblem and "Kimigayo" as their national anthem. During the 35 years that Korea was under Japanese rule, the Japanese always had the intent of assimilating the Korean people and worked very hard at the task. Because of that intent, any manifestations of Korean nationalism were suppressed quite harshly.

Many Koreans of this generation resolved to make the best of the situation as it certainly appeared to be all but permanent. Moreover, they were certainly rational in realizing that the costs--imprisonment or death--of a probably futile resistance were very high. Chung-Hee Park was a Korean nationalist but he was also an extremely pragmatic individual. His nationalist tendencies were tempered by the realization that his family had been condemned to backbreaking, soul-destroying poverty because of

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technicians employed in manufacturing, another 1,300 in mining and 2,000 in service industries. Altogether in 1944 there were in 1944 some 7,000 Korean managers and 28,000 professional and technical workers." He also notes that as early as 1937 there were more than 2,000 Korean-owned factories and at least 100 of them had more than 50 workers.

the actions of a corrupt Korean government.[396] He also recognized that he would never have received the education he had under any previous Korean government. Park justifiably held most past Korean governments to have been self-serving looters of the public fisc.[397] Consequently, with his nationalistic tendencies tempered by historical knowledge and personal experience, he was able to rationally assess the benefits and shortcomings of both Korean and Japanese governance.

Park knew Japanese history very well.[398] He had studied it at Taegu Normal and at both the Manchukuo and Japanese Military Academies, where it was one of his best subjects.[399] He deeply admired the Japanese penchant for order and their talent for organization. He had researched the Meiji Restoration very carefully and had a profound respect for Japan's accomplishment in being the only major Asian country to successfully resist colonization by Western powers.[400] Park knew Korea had a great deal to learn from Japan and he fully intended to use the Japanese example as a template for Korea.[401] He just wanted the relationship to be one between equals.

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[396] Park, "To Build A Nation," pp. 43-44.

[397] Chung-Hee Park, 지도자도 (The Leader's Way) (Seoul: Supreme Council of National Reconstruction, 1961). Published shortly after the military coup, this short book was extraordinary in its general denunciation of previous Korean governments for both personal dishonesty and neglect of their duties. What Park found most damnable about those previous governments was that the example of corruption they set had deeply infected the Korean people with the same disease of moral degeneracy.

[398] Chung-in Moon and Byung-Jun Joon, "Modernization Strategy: Ideas and Influences," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 120. They quote Tong-yeon Lee, Park's Chief of Staff from 1962-1964, as saying Park was a man "busy studying Japan. He frequently took clippings from Japanese newspapers and read The History of the Japanese Economy until midnight. A great portion of Park's modernization policy emerged from the emulation of Japan. He compared Korea's economic situation to that of Japan all the time, even through the 1970's."

[399] Chong, Un-yeon, 실록 박청희 (True Story of the Soldier Park Chung-Hee) (Seoul: Kaema, 2004), p. 118.

[400] Chung-in Moon and Byung-Jun Joon, "Modernization Strategy," p. 118.

[401] Ibid., p. 120. During a domestic crisis, Lee Tong-yeon mentioned Great Britain as a country whose historical experience could serve as a valuable example to Korea. Park replied, "Why should we learn from a faraway country like Great Britain? We have lots to learn from Japan, which is near to us."

When Park graduated from the Japanese Military Academy in 1944, he was returned to Manchukuo and sent to a remote village, Banbishan, on the edge of Inner Mongolia. Park was very lucky that he was not sent directly to the Japanese Army after his graduation from the Japanese Military Academy. There were many casualties among Park's Academy classmates as the war drew closer to the home Japanese islands. Park was also lucky in that when Japan surrendered on 15 August 1945, he was a long way away from where all the fighting between the Japanese Kwantung Army and the invading Soviet Red Army had taken place. Many captured Japanese and Korean soldiers were taken as prisoners of war to Siberia. Used by the Soviet Union as forced labor and working under harsh conditions with insufficient food, a large number of them died. The last of the survivors were not repatriated until 1956. Had Park been at Kwantung Army headquarters rather than far distant Banbishan, this could easily have been his fate.[402]

Because the likelihood of encountering Soviet forces in Manchuria was so high and posed so many dangers, Park and three other demobilized Korean officers from his unit decided to return home via Beijing.[403] Eventually managing to find passage back to Korea, he soon found his professional military training to be a highly valuable asset.[404] The American Military Government in Korea, responsible for Korea below the 38th Parallel since September 1945, was trying to establish a military force to provide order in what was rapidly becoming an anarchic situation. Park was quickly recruited into what became known as the Korean Constabulary in September 1946

[402] Lee, "Park Chung-Hee," p. 225.
[403] Ibid., p. 225.
[404] Ibid. As a graduate of the Japanese Military Academy Park was undoubtedly one of the most professionally qualified soldiers in Korea. Such credentials were very scarce at the time. Approximately one dozen Koreans in the entire peninsula could match Park's high level of professional military training. With the need to establish some type of national armed force increasing with every passing day, it was clear Park was destined for rapid promotion and very high rank.

and his military career resumed from that point. By the time the Republic of Korea succeeded the American Military Government on 15 August 1948, Park had been promoted to Captain in the Korean Constabulary.[405] He was known to his peers as a serious and extremely competent professional officer, and was well on his way to fulfilling his childhood dream to become a general. Then it all collapsed.

Park had joined a political group, the South Korean Workers' Party (Namnodong), in 1947. At the time he joined it was legally recognized by the American Military Government in Korea as a legitimate political party.[406] However, there were several violent outbreaks of Communist-inspired revolutionary activity in South Korea before the establishment of the Republic of Korea, the most serious of which was the Cheju Rebellion of 1948.[407] South Korean efforts to suppress this rebellion led to an October 1948 mutiny by troops preparing to go to Cheju as part of the government crackdown. These rebellions quickly led to a brutal and widespread purge of suspected Communist sympathizers in the South Korean military. Members of Namnodong were high on the list of those sought by the anti-Communists and Park was arrested on 11 November 1948.

Park's trial took place on 8 February 1949 and he had good cause to be worried about the outcome. There were many death sentences handed out by the military court and those so sentenced in the morning were usually executed in the afternoon of the same

[405] The Korean Constabulary was renamed as the Republic of Korea (ROK) Army after 15 August 1948.
[406] Lee, "Park Chung-Hee," p. 226. A U.S. Army major actually attended the party's inaugural conference as a personal representative of Gen. John Hodge, head of the American Military Government in Korea.
[407] These uprisings were not solely inspired by a desire for Communism; dissatisfaction with the Rhee government and separatist tendencies played large roles as well. However, the rebels were fully supported by Communists on the grounds that anything embarrassing to the Southern government was good for the North.

day. Park agreed to cooperate fully with the authorities in their investigation of leftists and this action, along with intervention from senior officers who thought highly of him, saved his life. Despite his cooperation, he was originally sentenced to life imprisonment. However, the Army quickly came to realize the purge net had been cast far too widely and soon reduced Park's sentence to fifteen years.[408] Shortly after that it was suspended. Park was released in December 1948.

He was allowed to return to his old position as section chief in the Operational Intelligence section of the Republic of Korea (ROK) Army, but that was not the end of the matter. To his surprise and shock, Park found himself dishonorably discharged from the ROK Army in April 1950. This action by the Army was a devastating blow and it appeared to finish his military career. Only through the self-interested generosity of the senior officer in his section, who hated to lose Park's undoubted competence, was he allowed to continue working there as a civilian.[409] He was lucky in that he at least still had a job, but it left him in the deeply humiliating position of being a disgraced former officer reporting to men who were once his subordinates.

That situation did not last long. When the Communists invaded on 25 June 1950, Park had the chance to display not only his extraordinary professionalism as a military officer but his leadership and loyalty to South Korea as well. The North Koreans captured Seoul on 28 June, only three days after war broke out. Acting on personal initiative, Park led the Operational Intelligence section personnel in gathering and

[408] Ibid., p. 260.
[409] Ibid., p. 261. Park was an excellent intelligence officer. He and his section were responsible for evaluating information received from North Korean refugees and deserters. Using knowledge gained from these and other sources, in late December 1947 Park authored an intelligence report predicting that the North Koreans would invade the South in the spring of 1950. His prediction was off by only one month.

organizing the necessary files, maps and other key documents required to reconstitute the section elsewhere. He then evacuated with them and the section staff to Daejeon, the designated regrouping point. Park's cool-headed behavior insured that this critically important intelligence section could later be restarted with a minimum of delay.

An impressive feat in itself, given the chaos reigning in Seoul at the time of the retreat, it is even more so when considering that Park was legally only a civilian while taking these actions. He had no warrant to give orders or make decisions, particularly in a military organization. He just recognized the crisis for what it was and followed his Japanese Military Academy training in acting swiftly when action needed to be taken. It speaks volumes for Park's command presence that despite his lack of any formal authority the rest of the section just followed his lead and did as he directed. Moreover, by retreating with the Southern forces despite his cashiering, Park resolved any doubts about his dedication to South Korea. Had he truly been a Communist sympathizer it would have been very easy for him simply to wait in Seoul for the Northern armies to arrive. Ernest Hemingway has defined courage as "grace under pressure." Park certainly displayed it in this situation.

When the senior South Korean military staff reassembled in Daejeon, they found that it was primarily due to Park that the Operational Intelligence section had conducted an efficient and orderly withdrawal allowing them to resume work as soon as directed. The senior leadership was duly impressed and recognized that Park's well-organized retreat with the Southern forces demonstrated both his loyalty and his undoubted competence as a professional military officer. Chung-Hee Park was reinstated in the

ROK Army as a major on 14 July 1950 and promoted to lieutenant colonel on 15 September 1950. In less than two years Park had experienced unexpected arrest, an imminent death sentence, a levied sentence of life imprisonment, dishonorable dismissal from the Army, a hostile military invasion of his country, a frantic and demoralized retreat when all seemed lost, reinstatement in the Army and high promotion. Park certainly showed the truth of Nietzsche's dictum that experiences which do not destroy an individual actually strengthen them. Having been tried so severely before he came to power, he was well prepared to handle the vicissitudes of high office when he arrived there.

Park continued to rapidly rise up the military career ladder. He was promoted to full colonel in May 1951, to brigadier general in November 1953, and to major general in March 1958. He held this rank when he launched his military coup against the Chang Myeon government on 16 May 1961. Park had previously raised objections to the corrupt influences he had encountered in both the Army and the civilian government, and was well aware that such complaints were not appreciated by the senior members of either group. The election of March 1960 had been rigged to allow the 85 year old Syngman Rhee to be returned to power.[410] This was common knowledge in Korea and evoked many student protests in April 1960, protests with which Park sympathized.[411] Park himself had been pressured by politically connected senior Army officers to influence troops under his command to vote for Rhee.[412] Park flatly refused to do

[410] Robinson, "Korea's Twentieth-Century Odyssey," p. 125.
[411] Park, "To Build a Nation," pp. 94-95.
[412] Kim, Se-Jin, The Politics of Military Revolution in Korea. (Chapel Hill: University of North Carolina Press, 1975), p. 75. According to Kim, Rhee's Liberal Party fundraisers pushed politically connected Army generals to contribute large amounts of cash to Rhee's political campaigns. This occurred since the ROK Army received roughly $400 million annually in American military aid as well as 40% of the national budget. The officers usually produced the desired funds, which came from sales of civilian-useable military gear, such as vehicles and petroleum. They also sold the food that should have been provided to the soldiers, either replacing it with goods of lower quality or not replacing it at

so.[413] The student protests spread rapidly to universities across Korea and were particularly intense in the Seoul area.[414] Rhee's government attempted to suppress the demonstrations through police and military repression, in some instances actually firing live ammunition into crowds of protestors. This resulted in the deaths of 183 student demonstrators on April 19 alone and the wounding of thousands more.[415] Given Rhee's long service to the cause of an independent Korea, the situation was a bitter and deeply saddening national tragedy. After a week of bloody violence, Rhee was forced to accept that the Korean people would never consider his election as legitimate and that the cost of maintaining power through repression was too high. This acknowledgement led to his resignation on April 26 and departure for exile in Hawaii on April 29.[416]

"A BANKRUPT FIRM TO MANAGE"

Rhee was replaced by Chang Myeon of the Democratic Party, who became both Prime Minister and leader of the government. Chang Myeon found himself presiding ineffectually over an increasingly chaotic country and trying to deal with legislative deadlock in the National Assembly. The country drifted for a year as the political and economic situations grew progressively worse.[417] Then, on 16 May 1961, General Chung-Hee Park led a military coup which overthrew the Chang Myeon government and installed a junta in its place. Park's rationale for the coup was as follows:

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all. What outraged Park was what had angered him about earlier Korean governments: the bad example set by the leaders corrupted their subordinates as well.

[413] Lee, "Park Chung-Hee," pp. 283-284. According to one eyewitness, an envoy came to Park's office to ask him to order his officers to "mobilize" the troops to vote for Rhee. Park asked the envoy, "How could I commit such a foul act!" Park then took the ballots brought by the envoy, ripped them up and threw them into the burning office stove.

[414] Park, "To Build a Nation," p. 94.

[415] Han, "The May Sixteenth Military Coup." p. 40.

[416] Cumings, "Korea's Place," p. 350.

[417] Park, "To Build a Nation," pp. 101-102

> Both the April 19 student revolution and the May 16 military revolution grew out of the chronic poverty of the nation. They were passionate expressions of the people's desire to live better. If poverty had been allowed to weaken them, as had happened before, they would have had national collapse. Food comes before politics. Only with a full stomach can one enjoy the arts and talk about social development. Before May 16 the Korean economy was in disorder. Accumulated political blunders and misguided economic policies had utterly disarranged it. . . Farmers' debt rose sharply. On the other hand a handful of select bureaucrats and business profiteers enjoyed luxury at popular expense.[418]

Park initiated the military coup d'état because he believed that the corrupt and indecisive civilian government was failing to do what was necessary to hold off the imminent Communist threat.[419] Once the coup had seized the main government buildings in Seoul and seemed to be on its way to success, Park publicly declared martial law, dissolved the National Assembly, proscribed all political activities and had many of the leading politicians arrested.[420] Three days after the coup, when it was all but certain it had succeeded, Park formed the Supreme Council for National Reconstruction (SCNR) which assumed executive, legislative and judicial authority in South Korea.

Park and the SCNR justified their actions by claiming the nation had not been led properly and that the military had been forced to step in to restore order and to lead the nation toward achieving its national goals. As seen by the SCNR, those goals consisted of opposing Communism, respecting the U.N. Charter, strengthening ties with the U.S. and rooting out national corruption. The SCNR also aimed at instilling moral character and national spirit in the people, reducing national poverty, increasing

[418] Ibid., pp. 101-102.
[419] Ibid., p. 96.
[420] Ibid., p. 105.

the independence of the national economy and preparing the nation to achieve national unification under a non-Communist government.[421] Park and the SCNR promised that once these goals were achieved, they would turn the government back over to "conscientious politicians" and return to their military duties.[422]

For the next two years Park was fully occupied with a host of issues, the two most important being consolidating power in his own hands and keeping the Americans happy with his governance. Both of those issues are outside the scope of this study other than to note that in adroitly outmaneuvering his rivals within the junta, his most often used, and most effective, tool for purging potential challengers was an accusation of corruption. This worked very well because in most cases the accusations were true. There were so many in the Korean military tainted with it that finding someone who had not been involved to at least some degree was quite rare.[423] As for the Americans, Park's fervent anti-Communism and his government's record of fast-paced accomplishment quickly impressed them.[424] With these prerequisites appropriately handled, Park moved on to dealing with Korea's central problem: its economy.

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[421] Han, "The May Sixteenth Military Coup," p. 51.
[422] Ibid.
[423] Kim Se-Jin, "Military Revolution," p. 76. The amounts of money a Korean soldier was paid under the Rhee regime were incredibly low. In 1952 a private was making less than $0.50 per month. A captain was making approximately $6 per month. According to Lee, a lieutenant's monthly salary would not buy more than two bowls of noodles. Lee, "Poverty to Power," p. 287. In such circumstance corruption was bound to flourish.
[424] Kim, Hyung-A, "State Building," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), pp. 105-107. Kim describes the quick and efficient restructuring of South Korea's chaotic electric power industry. Park made Major General Nae-Hyeok Cheong head of the Ministry of Commerce and Industry in May 1961 and directed him to reform the industry. Cheong treated the task like a military operation and completed it within one month, rationalizing the industry, firing surplus personnel and restructuring it on an orderly and efficient basis. Civilian governments had been futilely trying to accomplish this task since 1951. The speed and success of this operation highly impressed the Americans responsible for disbursing aid to Korea.

What Park deemed most crucial was providing economic progress for the country.[425] He was always aware that his government would be very closely scrutinized on this particular issue and that failing to produce an increase in national prosperity was not an option. This was when his study of the Meiji Restoration and the insights gained while watching the Japanese Kwantung Army leadership came to the fore. Park knew what he wanted to do and how he wanted to do it. He wasted no time in setting his plans in motion.

The first task he faced was taming the *chaebôl*. As the earlier quotation from Park showed, he and his fellow officers initially held them in very low esteem.[426] He very quickly moved against them after the coup through the "Special Measure for the Control of Illicit Profiteering," which was enacted by the SCNR on 28 May 1961.[427] "Illicit profiteers," as cited by this measure, had done some or all of the following:

1. Earned profits of more than 100 million hwan through purchasing or renting publicly owned properties. [428]

2. Earned profits of more than 200 million hwan through monopoly utilization of foreign exchange.

3. Earned profits of more than 200 million hwan through illegal contracting or bidding for public works and/or commodity trade.

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[425] Chung-Hee Park, The Country, Revolution and I (Seoul: Hollym Corporation, 1970), p. 177. Park states here that "the key factor of the May 16 Military Revolution was …an industrial revolution in Korea. . . . My chief concern, however, was economic revolution."

[426] Chung-Hee Park, Our Nation's Path. (Seoul: Hollym Corporation, 1970), p. 201. In referring to the *chaebôl* Park used the term "rapacious wolves." The two groups clearly did not understand one another at first. Woo stated that the junta members were "men of peasant origin and harbored, like ultranationalist Japanese officers in the 1930's, a peasant's suspicion of the wealthy." Woo, "Race to the Swift," p. 81.

[427] Kim, Hyung-A. Korea's Development Under Park Chung-Hee. (London: Routledge/Curzon, 2004), p. 81.

[428] Taehyun Kim and Chang Jae Baik., "Taming and Tamed by the United States," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 75. The *hwan* was the unit of currency used in South Korea prior to the coup. It was replaced during the June 1962 currency reform by the current currency unit, the *won*. The rate of exchange was 10 *hwan* to 1 *won*.

4. Gave more than 50 million hwan to political parties to illegally procure bank loans.

5. Tax evasion of more than 200 million hwan.

6. Transferred funds abroad without authorization.

7. Obtained more than $100,000 of bank or government-owned foreign exchange.

Since all of the above actions were commonplace under the Rhee regime, the SCNR was in effect retroactively criminalizing most *chaebôl* business conduct during the Rhee era.[429] This edict, if stringently enforced, could bankrupt every *chaebôl* in South Korea and place their senior management in jail for an indeterminate period. With the junta now wielding the power of life or death over them, what remained to the *chaebôl* was to see how the junta intended to use it.

The Korean Central Intelligence Agency (KCIA) had been one of the first organizations formed after the coup. Formed on June 10, the KCIA could "control and supervise both international and domestic intelligence activities, and the criminal investigations undertaken by all government intelligence agencies, including that of the military."[430] The KCIA combined the powers of the American Central Intelligence Agency with those of the American Federal Bureau of Investigation and from its origin it proved a fearsome instrument of coercion in the hands of the government. When a dozen *chaebôl* owners were arrested by the KCIA on charges of having violated the illicit profiteering law, it sent a very strong message to the remainder. The

[429] Woo, "Race to the Swift," p. 83.
[430] Kim, "State Building," p. 91. Kim also notes that the first law promulgated after the coup was the "Law Regarding the Extraordinary Measures for National Reconstruction." This law explicitly stated that if there should be conflicts between the South Korean Constitution and itself, "the latter would prevail." This meant there was effectively no check on what the KCIA could do other than executive intervention, a state of affairs which undoubtedly terrified the *chaebôl* leadership and contributed mightily to their willingness to cooperate with the junta.

arrested were deemed "illicit profiteers and tax evaders," ordered to surrender all illegal profits, and given six months to pay all fines and outstanding taxes.[431] The stringency of this repayment schedule meant bankruptcy for most of them and they knew it.[432]

Lee Pyeong-cheol, founder of Samsung and the richest man in Korea, was in Japan at the time of the arrests. He fully expected to be arrested upon his return and was indeed met at on June 27 at Kimpo Airport by the KCIA. Instead of taking Lee to jail however, they took him to a meeting with Chung-Hee Park. Lee always considered himself a "Japanese gentleman" and carried himself as such, to the point of having married a Japanese wife.[433] During the meeting Lee apparently convinced Park that both Korea and his government would be better served by having the willing assistance of the *chaebôl* leadership rather than having them rotting in jail.[434] The outcome was that the *chaebôl* leadership collectively agreed to "voluntarily donate" all their assets to the SCNR if needed for "national construction."[435] While the *chaebôl* did not "voluntarily donate" much of anything to the Korean Government, they did quickly begin to fully cooperate with Park's government. In the end, by January 1962 the fines had been reduced to almost nothing.[436]

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[431] Cumings, "Korea's Place," p. 312. According to Cumings, the arrested businessmen were marched through the streets of Seoul wearing dunce caps and sandwich boards emblazoned with statements such as, "I am a corrupt swine" or "I ate the people."
[432] Kim, "State Building," p. 94.
[433] Ibid., p. 326 Also, in 삼성중공업 30 년사, 1974-2004 (Thirty Years of Samsung Heavy Industries, 1974-2004) (Seoul: Samsung Heavy Industries, 2005), p. 7. Lee attended Waseda University in Japan and was accused of colonial-era collaboration with the Japanese. A portrait of him wearing a 두리마기(durimagi), a traditional Korean man's outer coat, is included in this history, possibly in an attempt to emphasize his Korean background. His ties with Japan were a political liability after Korean independence; however, Lee's Japanophilia may have favorably influenced Park.
[434] Eun Mee Kim and Gil-Sung Park, "The *Chaebôl,*" The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 274.
[435] Kim, "State Building," p. 95.
[436] Ibid., p. 99

What had really transpired was that Park had demonstrated to the *chaebôl* leadership who was in charge and served notice that things were now very different than in the Rhee era. It is doubtful that Park ever truly intended to do much more than what he did to the businessmen despite the fact that some extremist junta factions were actually calling for executions.[437] He knew from his Manchukuo experience that it was government-directed capitalists and entrepreneurs who turned Manchukuo into an industrial powerhouse.[438] He was under no illusions that Korea's transformation to an industrial country could be done without them. However, he needed them to know that the days of buying government influence were over and that if they wanted to stay in business they needed to do exactly as they were told by the state. That lesson came through very clearly.[439]

What was even more effective in Park's campaign to bring the *chaebôl* to heel was an action taken by the SCNR on 16 June 1962. This was the "Emergency Banking Measure."[440] This nationalized the five major commercial banks and effectively put a choke chain around the neck of the *chaebôl*.[441] Korean *chaebôl* were not like Japanese zaibatsu, with a bank at the heart of the conglomerate providing financing for the attached subsidiaries. The *chaebôl* were dependent on external bank financing which was now controlled by government. With the banks nationalized and lending only at government direction, the *chaebôl* had only two choices: follow government direction or limit themselves to only what their own financial resources would allow.[442] The

[437] Ibid., p. 95
[438] Lee, "Park Chung-Hee," p. 307, p. 317.
[439] Kim and Park, "The *Chaebôl*, p. 272-275.
[440] Kim, "Korea's Development," p. 81.
[441] Amsden, "Asia's Next Giant," p. 72-73. According to Amsden, the subject banks were close to bankruptcy at the time of nationalization. The government gained few real assets thereby but assured itself complete control over the financing available to the chaebôl.
[442] Mason, "Modernization," pp. 265. Referring to the government's ability to influence *chaebôl* behavior, Mason noted, "A firm that does not respond as expected to particular incentives may find that

second choice led only to stagnation, decline and eventual dissolution and the wiser *chaebôl* leadership realized that. If a *chaebôl* wanted to have the financial lifeblood to expand, it needed to toe the government line, and the government line after Park took control was to increase exports at all costs.[443]

This was much easier said than done. Korea in the early 1960's was a desperately poor country, one which many external observers thought might always be a "basket case" dependent on external aid.[444] Park had no illusions about the country's desperate condition.

> When I took over power as the leader of the revolutionary group on May 16, 1961, I felt, honestly speaking, as if I had been given a pilfered household or a bankrupt firm to manage. Around me I could see little hope. The outlook was bleak.[445]

Park is not overstating the case here. With a clearly hostile and very dangerous neighbor to the north with which it was still technically at war, corrupt, ineffective government and a poor record of economic advancement since the end of the Korean War, South Korea justifiably held little appeal for international investors. Park's military coup worsened that international image, adding an impression of

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its tax returns are subject to careful examination, or that its application for bank credit is studiously ignored, or that its outstanding bank loans are not renewed. If incentive procedures do not work, government agencies show no hesitation in resorting to command backed by compulsion."

[443] Sudip Chaudhuri, "Government and Economic Development in South Korea, 1961-1979." Social Scientist. Vol. 24, No. 11/12, p. 19-21. In presenting Korea's efforts to increase exports, Chaudhuri remarked that the figures were being followed so closely that "Daily contacts [by government agencies, primarily the Ministry of Commerce] were made with the major exporters and problems, if any, were directly tackled."

[444] Mason, "Modernization," p. 7; Kirk, "Korean Dynasty," p. 75. Kirk quotes Donald Macdonald, a senior State Department official responsible for Korea, recalling that in 1960, "A group of about 15 Americans were sitting around a table in the White House office building drafting U.S. Policy on Korea. The majority position was that Korea was an economic basket case that would always depend on American handouts for its existence."

[445] Park, "To Build A Nation," p. 105

governmental instability to the already depressing economic and political landscape. Consequently, when Park's post-coup government went looking for international investment, they found little interest.[446]

Park realized that "economic development in the capitalist manner" was going to take an "immense amount" of capital investment and that Korea at that time simply could not provide such funding from its own resources.[447] However, Park held no belief more firmly than *pukuk kangbyeong* and he was a man whose whole life exemplified the 하면 된다 (*hamyeon toenda*), or "can do," spirit. Park fervently believed that for a poor nation like Korea to become rich it first had to become industrialized.[448] Logically derived from that conclusion was the realization that the money for industrial development must be somehow procured since the nation's future was critically dependent on it.[449] Park and his economic advisers, determined to find a way to finance that development, quickly came to realize that Korea's limited national resources meant a multi-pronged approach was required.

The first approach was to endeavor to increase national savings as much as possible. Korean bank deposits paid little and this fact was reflected in their relative scarcity: private savings in 1960 amounted to 1.6 percent of Korea's gross national product (GNP).[450] Korean taxation was also far too low for the country, amounting to only 9.9 per cent of a very low GNP.[451] This was a more serious problem. It reflected the persistent and widespread tax evasion by the *chaebôl*, the only groups in the country

[446] Kim and Baik, "Taming and Tamed," p. 75.
[447] Ibid.
[448] Park, "To Build A Nation," p. 100
[449] Ibid., p. 105.
[450] Woo, "Race to the Swift," p. 81.
[451] Ibid.

who really had much money, and the failure of previous governments to pursue and ensure compliance. The junta tried to address the issue with an ill-considered 1962 currency reform.[452] They also reformed tax collections and exchange controls.[453] While these actions were needed to publicly demonstrate the intent to utilize domestic resources for modernization, they did not actually accomplish much with regard to increasing the capital available for investment.[454] More had to be done.

The second approach was a truly consequential move in that direction. This was the 1962 Payment Guarantee Act for Foreign Loans.[455] This legislation provided a government guarantee for foreign lenders providing capital to Korean businesses. This Act made Korea a much safer prospect for investment capital and ameliorated at least some of the uncertainty inherent in foreign lending to Korean firms. A government loan guarantee eliminated the risk of both default and exchange rate depreciation.[456] It soon transpired that the vast majority of foreign loans to Korean businesses had a government loan guarantee.[457] This was very important at the time as foreign lenders were quite skeptical about lending to Korean firms; however, the

[452] Park, "To Build A Nation," p. 123. Park refers to this currency reform as "the representative blunder of the first five-year plan."
[453] Woo, "Race to the Swift," p. 82. Both of these issues would be addressed several more times during the Park regime as they were commonly used tools of both economic policy and governmental compulsion.
[454] Mason, "Modernization," p. 96, p. 320-322. Mason also notes that the Park government addressed the tax issue more thoroughly later, raising the tax ratio to 14.4 per cent by 1968.
[455] Sang-Cheol Lee, "Industrial Policy in the Park Chung-Hee Era," Developmental Dictatorship and the Park Chung-Hee Era: The Shaping of Modernity in the Republic of Korea. Editor: Byeong-Cheon Lee. (Paramus: Homa and Sekey Books, 2006), p. 90-91. The author, who is generally critical of Park Chung-Hee's administration, fairly notes that this gave the government tremendous power to force businesses to accede to government wishes. Failure to do so meant the denial of loan guarantees, which almost certainly meant withdrawal of the loan tender.
[456] Amsden, "Asia's Next Giant," p. 73.
[457] Ick-Jin Seo, "Industrialization in South Korea: Accumulation and Regulation," Developmental Dictatorship and the Park Chung-Hee Era: The Shaping of Modernity in the Republic of Korea. Editor: Byeong-Cheon Lee. (Paramus: Homa and Sekey Books, 2006), p. 69 Seo states the rate of guaranteed loans in the 1950's and 1960's was as high as 88 per cent. See also Mason, "Modernization," p. 268 and Cumings, "Korea's Place," pp. 314-318. Cumings has a very amusing description of how these loan guarantees generally tended to work in Korea for favored firms.

effect of this Act changed as the international respect accorded the Korean Government increased.[458]

1965 was the year that the Park administration took its most effective actions toward providing sufficient investment capital for Korean industrialization. The third approach made was to institute an interest rate reform. Interest rates on banked time deposits were raised in September from 15 to 30 per cent, a rate which closely approximated the interest rates paid by the informal money lending market in Korea, usually referred to as the "curb" market. Prior to this change Koreans had saved a relatively small amount of their money in banks, preferring to invest their savings in the "curb" markets where they could obtain interest rates of from 3 to 7 per cent monthly.[459]

This interest rate reform proved to be extremely popular with Korean savers: savings deposits flooded into the banks, growing by 25 percent in one month, by 50 percent in three months, and by 100 percent in three years.[460] Table 22 below shows that from 1965 on there was only one year where household gross savings had negative growth even though the chart relates savings to a rapidly increasing GNP. Gross government and business revenues were never again negative over the period of sampling and the amount of domestic investment steadily grew as a proportion of overall total capital investment.[461]

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[458] Woo, "Race to the Swift," pp. 157-158. As Woo notes, by 1975 Korea was considered one of the safer places for foreign investment. The Act then served more as a compliance method for keeping the *chaebôl* in line.
[459] Ibid., pp. 333-335. Mason estimates that prior to the reform the "curb" markets may have accounted for as much as up to 40% of bank loans.
[460] Woo, "Race to the Swift," p. 103; Amsden, "Asia's Next Giant," p. 74.
[461] Mason, "Modernization," p. 334. Mason notes that while the rate of domestic savings obviously grew during the time period in question, other sources claim that this may not have been a net gain but rather a redistribution of money to the banks and away from the "curb" market. He also notes that other

Table 22: TRENDS IN THE RATIO OF SECTORAL GROSS SAVINGS TO GNP, 1960-1982 (%)[462]

Year	Gross Domestic Savings Rate				Foreign Savings Rate	Statistical Discrepancy	Gross Savings = Gross Investment
	Government	Business	Household	Total			
1960	-2.0	5.3	-2.5	0.8	8.6	1.5	10.9
1961	-1.8	5.9	-1.3	2.9	8.6	1.7	13.2
1962	-1.5	7.1	-2.3	3.3	10.7	-1.1	12.8
1963	-0.4	7.1	2.0	8.7	10.4	-1.0	18.1
1964	0.5	6.5	1.8	8.7	6.9	-1.6	14.0
1965	1.7	7.7	-2.1	7.4	6.4	1.2	15.0
1966	2.8	7.5	1.6	11.8	8.4	1.3	21.6
1967	4.1	7.9	-0.6	11.4	8.8	1.7	21.9
1968	6.1	7.8	1.1	15.1	11.2	-0.4	25.4
1969	5.9	7.7	5.2	18.8	10.6	-0.6	28.8
1970	6.5	7.5	3.4	17.3	9.3	0.2	26.8
1971	5.4	7.5	2.5	15.4	10.7	-0.8	25.2
1972	3.6	9.1	3.0	15.7	5.3	0.7	21.7
1973	4.2	11.4	7.9	23.5	3.8	-1.7	25.6
1974	2.3	12.1	6.1	20.5	12.4	-1.9	31.0
1975	4.0	11.3	3.4	18.6	10.4	0.4	29.4
1976	6.2	10.9	6.0	23.1	2.4	0	25.5

factors such as taxation reform, the large amount of money entering the country after 1965 from Japanese loans and grants and the funds earned by Korea for its participation in the Vietnam War may skew these results. It is germane to note that the rise in interest rates was revoked in 1972. However, the effects of that revocation may have had less effect than it might normally have had due to the Emergency Decree for Economic Stability and Growth issued in that year, which froze the "curb" market for three years and restructured all commercial loans to have a maximum interest rate of 16 per cent. With the "curb" market effectively frozen, savers had no place to deposit funds except the banks. One other point to be made here is that no matter where the money may have been drawn from to increase the amount of domestic savings, whether it came from the "curb" or elsewhere, what the growth in official bank loans insured was that the tax authorities got their "cut" of the interest paid to savers. This legal obligation was quite often disregarded on informal loans.

[462] Kwang-Suk Kim and Park Joon-Kyung. Accounting for Korea's Rapid Economic Growth, 1963-1982. Working Paper 84-01, Korea Development Institute. (Seoul: Korea Development Institute, 1984), p. 30. Information is extracted from Bank of Korea chart, "National Income in Korea, 1982."

Table 22 (continued): TRENDS IN THE RATIO OF SECTORAL GROSS SAVINGS TO GNP, 1960-1982 (%)[463]

1977	5.6	10.9	8.6	25.1	0.6	1.6	27.3
1978	6.5	9.9	10.0	26.4	3.3	1.5	31.1
1979	7.2	9.7	9.7	26.6	7.6	1.2	35.4
1980	6.2	8.2	5.5	19.9	10.2	1.4	31.5
1981	6.7	8.3	4.6	19.6	7.9	0.9	28.4
1982	6.7	9.7	5.1	21.5	4.8	-0.1	26.2

THE 1965 NORMALIZATION OF RELATIONS WITH JAPAN

The interest rate reform in 1965, along with tax reform, would eventually provide a much larger domestic source to help slake Korea's thirst for capital investment.[464] However, Chung-Hee Park was a man in a hurry. For him, the future was now and he wanted Korean industrialization to proceed as quickly as possible. The limiting factor, however, was capital and Korea simply could not produce or acquire enough of it in the early 1960's to industrialize at the pace Park thought necessary. It soon became clear that a sufficient economic surplus to permit rapid industrialization could not be extracted quickly enough from domestic sources. Park also soon found that Korea's foreign aid sources would not step forward to fill the funding gap. Consequently, Park and his advisers decided to try leveraging Korea's political status in an attempt to obtain development capital.

[463] Kwang-Suk Kim and Park Joon-Kyung. Accounting for Korea's Rapid Economic Growth, 1963-1982. Working Paper 84-01, Korea Development Institute. (Seoul: Korea Development Institute, 1984), p. 30. Information is extracted from Bank of Korea chart, "National Income in Korea, 1982."

[464] Park, "To Build A Nation," p. 113. Park claimed a "seven-fold increase in bank savings" in the next five years after the implementation of the interest rate rise. Park also mentioned that the tax reform, which produced greater compliance, "allowed the government to formulate a balanced budget."

Korea and Japan had coexisted in a state of cold hostility since the end of the Second World War. Most Koreans felt they had been brutally treated during the colonial era and retained many justified grievances against Japan. The popular anger against Japan was visceral, intense and widespread and it had been strengthened by anti-Japanese educational indoctrination conducted in Korean schools since independence.[465] The Rhee regime had been quite vocal in its public denunciations of Japan.[466]

If one considers inter-Korean relations as distinct from strictly "foreign" policy, there was no more politically volatile issue in Korea's international relations than its relationship with Japan. As President, Chung-Hee Park was well aware that any attempt to normalize relations with Japan was fraught with risk. Normalization of diplomatic relations with Japan was bound to be a dangerous topic for any Korean politician since there was a very large group of Koreans whose anti-Japanese anger could not be assuaged and who would never countenance it under any circumstances.

Adding to the inherent difficulty was the propaganda coup normalization would provide to the North. Il-Sung Kim had actually built in the North what Communists so often condemn, a "cult of personality," and a great deal of the mythos upon which it rested focused on exaggerated tales of his success as an anti-Japanese guerilla fighter.[467] Park knew Il-Sung Kim would take great pleasure in castigating him as a traitor betraying Korea to the hated former colonial power. Because Park was a former Japanese Army officer who had seized power through a military coup, such criticisms had a certain amount of apparent credibility to the uninformed or those opposed to the government. Park's democratic 1963 election notwithstanding, taking

[465] Ibid., p. 130.
[466] Cumings, "Korea's Place," p. 318-320.
[467] Ibid., p. 160-162. Even Cumings, who is by no means unsympathetic to North Korea, refers to the stories commonly heard in North Korea concerning Kim's war record as "ridiculous tales."

the lead on this issue left him very vulnerable to accusations of being 친일(chin'il, or pro-Japanese) at Korea's expense and he knew it.

Distasteful as the thought of it was for many Koreans, normalization was not a completely unvisited subject. While the issue of normalization with Japan was extremely contentious within Korea, it had been discussed to some degree with both the Syngman Rhee and the Chang Myeon governments. Korea's negotiating position under Rhee started with blanket demands for massive reparations and an imperial apology.[468] In both areas the Japanese believed that the Koreans were asking far too much and, after initial contacts, the discussions were terminated.[469] However, the situation could not be left alone. It was no secret that the United States had wanted South Korea to normalize relationships with Japan since the 1950's as part of its regional plan to strengthen East Asia against Communism.[470] Urged by the Americans to present some position on the issue, the Rhee regime had refused to even consider normalization for anything less than $2 billion in reparations. Its short-lived successor, the Chang Myeon government, dropped the figure to $1.2 billion.[471]

Chung-Hee Park, facing an absolute decline in American foreign aid and Korea's demonstrated and continuing inability to attract foreign capital, could not afford to be unreasonable. Nor was he as viscerally intransigent about the issue as Rhee, who the Americans saw as a saboteur intentionally adopting policy stances he knew would

[468] Jung-Hoon Lee, "Normalization of Relations with Japan: Toward a New Partnership," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 433.
[469] Cumings, p. 318-9.
[470] Mason, "Modernization," p. 48. Amsden, p. 74. Amsden notes that the U.S. was putting "enormous pressure" on Korea to normalize relations in the 1960's
[471] Lee, "Normalization," p. 444.

ensure Japanese rejection.[472] Park correctly recognized normalization as a valuable bargaining chip which Korea could trade for desperately needed development funding and technology transfer.

After the coup, Park did not waste time. Through intermediaries he started discussions with the Japanese shortly after taking power. He actually conducted a state visit to Japan in November 1961.[473] While his visit was a good start and clearly demonstrated a changed Korean attitude, arriving at a suitable agreement proved no easy task. Once the actual process of negotiation began, it transpired that there were many issues to resolve, some of which required extremely delicate handling.[474] In a reversal of earlier negotiations where Korea had deliberately obstructed progress, the Japanese now found themselves excusing their delays on the grounds that the Japanese political system did not have the speed and flexibility of Park's Korea, where "the military regime can put into effect its decisions instantly."[475]

In the event it turned out that Park's government did not have quite the latitude the Japanese thought. As word spread in Korea about the progress of the negotiations, an anti-government backlash emerged. Park ended up forced to declare martial law and close numerous universities nationwide as rioting and other disturbances erupted throughout 1965. Park, writing in 1971 about the protests, noted that

> I knew this opposition was motivated by patriotism. However, the force of conservative public opinion could not be allowed to stand in the way of national development. I attempted to convince the people

[472] Cumings, "Korea's Place," p. 318. Rhee truly hated Japan and Japanese; Park obviously had a much better opinion of them.
[473] Lee, "Normalization," p. 440-441.
[474] The Dokdo/Liancourt Rocks issue was one of them. The normalization treaty makers simply had to agree to sort it out by diplomatic means at a later time. As of this writing, fifty years later, that time has yet to arrive.
[475] Ibid., p. 18. Lee here is quoting Japanese Prime Minister Ikeda speaking to U.S. Secretary of State Dean Rusk in November 1961.

> that a changed international situation made normalized relations with Japan a necessity. In spite of my effort, the situation worsened and a proclamation of martial law was necessary.[476]

The size and frequency of the student protests was such that they were described as "a sea of demonstrators" who were "vowed to oppose unto death any attempt at restoring relations."[477] There is no doubt Park took a major political chance in forwarding normalization against such strong popular opposition. He was certainly aware that student-led demonstrations had brought down the Syngman Rhee government and provided justification for Park's own coup. However, Park was certain he was right and he would not be thwarted. Realizing that his own government was in serious danger, Park responded to the challenge by calling out four infantry divisions (almost 50,000 troops) to suppress the dissent. His government forcibly censored the media as well.[478] Park's actions were certainly not democratic but they were highly effective in ending the protests.

With the opposition successfully quelled, normalization was finally accomplished in late 1965 after a considerable amount of behind-the-scenes urging by the United States.[479] In the end, the sum agreed between Japan and the Park government was $800 million: $300 million in grants, $200 million in Japanese government loans and $300 million in private commercial loans.[480] For South Korea, a nation whose total

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[476] Chung-Hee Park, "To Build A Nation," p. 130. See also Joo-Hong Kim, "The Armed Forces," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), pp. 172-173.
[477] Woo, "Race to the Swift," p. 86.
[478] Joo-Hong Kim, "The Armed Forces," p. 172. Kim notes that armed soldiers forced recalcitrant judges at gunpoint to issue warrants for student leaders and broke into certain newspaper and television facilities to insure they did not write or broadcast opinions critical of the normalization.
[479] Woo, "Race to the Swift," p.
[480] Seung K. Ko, "South Korean-Japanese Relations since the 1965 Normalization Pacts." Modern Asian Studies Vol. 6, No. 1 (1972), p. 52. Ko notes that the total claim fund of $500 million in grants and government loans was supposed to be disbursed within a ten-year period. Ko also notes that $45.7 million in debts owed by Korean firms to Japanese businesses was paid out of the grant funding.

1964 exports amounted to roughly $200 million, such a large sum of investment capital proved extremely helpful.[481] Moreover, the $300 million in private loans was just the start of what would become a much bigger flow of Japanese capital.[482] Most important of all, however, was that this money was what allowed Chung-Hee Park to accomplish his most cherished industrial aim.

Of all the investment projects possible, Park most desired an integrated steel mill for Korea.[483] Park was fond of saying, "철은 국력 (steel is national power)," and he was determined to have that power for Korea as he correctly believed it essential for both industrial progress and national defense.[484] Park had visited the massive Mitsubishi factories in Japan while a cadet at the Japanese Military Academy.[485] For him, that impressive manufacturing capacity epitomized the Japanese national power that sprang from the Meiji Restoration modernization. He also knew that the Japanese military officers who ran Manchukuo believed Japanese industrial might was what had allowed them to defeat the Russians in 1905 and expand the Japanese Empire.[486] These lessons were not lost on him.[487]

Park knew an integrated steel mill was critically important for Korean industrialization. Park's problem was that no one in the world wanted to help Korea

[481] Woo, "Race to the Swift," p. 87.
[482] Sung-Hwan Jo, "The Economic Relations between South Korea and Japan: Review and Prospects," Working Paper No. 7808, Korea Development Institute, 1978, 35-36. Jo notes that by June 1977 Japanese commercial loans to Korea had amounted to $981.4 million.
[483] Sang-Young Rhyu and Seok-Jin Lew. "Pohang Iron and Steel Company," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 323.
[484] Woo, "Race to the Swift," p. 120.
[485] Chung-in Moon and Byung-Jun Joon , "Modernization Strategy," p. 119.
[486] Michael A. Barnhart. Japan Prepares for Total War: The Search for Economic Security, 1919-1941. (Ithaca: Cornell University Press, 1987) pp. 21-27, 34-36, 46-49. During Park's time in Manchuria he would have heard a great deal about both the successes and deficiencies of Japan's mobilization preparations.
[487]

build such a mill and Korea had neither the technological knowledge nor the capital to do so on its own. Through *chaebôl* intermediaries Park tried in 1961, 1962, and 1964 to obtain international financing for an integrated steel mill.[488] In all of these attempts Park found that the potential lenders thought Korea had neither the market nor the comparative advantage to justify such a facility.[489] Park and his economic advisers understood that a properly sized integrated steel mill would benefit Korea's economy both through import substitution and export sales.[490] These were critical areas since Korea had a worsening balance of payment problem exacerbated by the fact that by 1970 iron and steel products were second only to crude oil on the list of import expenses.[491]

Finally, after one last unsuccessful attempt in 1967 to obtain external financing, Park directed his government to approach Japan about using some of their reparation funds for the construction of an integrated steel mill.[492] In February 1969 a retired Army general, Tae-Jun Pak, approached senior members of the Japanese steel industry on behalf of President Park and Korea's Economic Planning Board. Pak's suggestion was that Japan's steel industry consider helping South Korea build a steel mill in order for Japan to retain a sizable share of the Japanese funding committed to Korea. Pak's proposal was favorably received by the Japanese and a feasibility study was

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[488] Rhyu and Lew. "Pohang Iron and Steel Company," pp. 325, 328-9.
[489] Ibid., p. 331. This was a rational judgment on the basis of what was known at the time. Korea had neither iron ore nor coal in sufficient quantities to operate an integrated steel mill. All raw materials would have to be imported thus adding another drain on Korea's already problematic balance of payments.
[490] Amsden, "Asia's Next Giant," p. 295. Amsden notes that one of the problems with external investors' unwillingness to back a Korean integrated steel mill was the size of the mill the Koreans wished to build. The international investors were certain that the Koreans were overreaching. In the end it turned out even the most optimistic Korean estimates were far short of the actual amounts of steel required in Korea.
[491] Rhyu and Lew. "Pohang Iron and Steel Company," pp. 324.
[492] The Japanese never referred to the money provided to South Korea as "reparations," fearing that use of the term would have pernicious effects on their international image. The term they preferred was "development grant" or "development loan."

conducted which returned a positive appraisal. After some heavy lobbying for the project from the heads of Fuji Steel and Yawata Steel, opposition from Japanese government ministries was overcome and the project was approved in September 1969.[493] Surprisingly enough, given the previous seven long years of fruitless searching for a way to obtain an integrated steel mill for Korea, Park's negotiators completed this deal in only nine months. The Japanese handled all design engineering and material procurement; construction started in April 1970. The mill was completed in July 1973. Its final cost was $123.7 million and its initial output was slightly over 1 million tons per year.[494]

Once the mill was complete, its progress surprised everyone. Confounding the skeptics, the new enterprise, named Pohang Iron and Steel Company (POSCO) after the town where it was located,[495] proved profitable from its outset.[496] Deliberately retained as a state-owned enterprise (SOE) to avoid giving any one *chaebôl* such tremendous influence over Korean manufacturing,[497] POSCO's unexpected financial success was a major accomplishment.[498] Chung-Hee Park had deduced that Korea had an imperative necessity for an integrated steel mill if it was going to become an industrial power, and he was the most important driving factor in accomplishing that

[493] Ibid., pp. 333-334. It is interesting that the public justification provided by the Japanese steel manufacturers rested on South Korea's ability to resist Communism.
[494] Amsden, "Asia's Next Giant," p. 293.
[495] Kyoung-Ho Shin and Paul S. Ciccantell, "The Steel and Shipbuilding Industries of South Korea: Rising East Asia and Globalization, Journal of World-Systems Research .Vol. XV, Number 2, p. 179. The authors note that one of the major reasons for choosing Pohang as the location for the mill was its deepwater port, capable of berthing large bulk carriers bringing iron ore and coal in and taking finished steel products out.
[496] Rhyu and Lew. "Pohang Iron and Steel Company," p. 325.
[497] Amsden, "Asia's Next Giant," p. 295.
[498] POSCO has been highly subsidized in that it was provided with large amounts of long-term low interest loans and major infrastructure improvements including construction of dedicated paved roads, railroad spurs, and major port facilities. Given POSCO's stellar economic performance, however, the Korean Government's investment has paid off quite handsomely.

feat.[499] However, even he could not have anticipated just how much POSCO was going to benefit both Korean business and the national economy.[500] The clearly apparent demand for POSCO's steel induced the Korean Government to announce an expansion of POSCO even before completion of the initial mill.[501]

POSCO's first piece of Korean-made steel emerged into a Korea voraciously hungry for its products; it could have sold everything it made in Korea without bothering with exports.[502] However, in keeping with Korea's plan for the mill to serve both as an import-substitution facilitator and an export generator, POSCO set export targets of 30% in 1974 and 1975 and actually exported 40% of production.[503] POSCO's success should be seen as a microcosm of what made the Park regime so successful in its promotion of Korean industrialization. From the government side, highly placed bureaucrats, answerable personally to President Park, paid close attention to insuring the industry's technical and economic requirements were met while also constantly evaluating its production results.[504] From the business side, men like Tae-Jun Pak and Ju-Yung Chung had extremely easy access to President Park. Park wanted this industrialization to succeed and through having close access to both the government

[499] Rhyu and Lew, "Pohang Iron and Steel Company," p. 336, 340, 344. These historians refer to Park as both POSCO's "mother" and the "pivotal variable."
[500] Amsden, "Asia's Next Giant," p. 296. Amsden notes here that Korean labor costs per ton of shipped steel in 1973 were $7.06. This compares with Japanese costs of $23.83, British costs of $27.06, German costs of $32.86 and American costs of $37.83. As with many other industries in South Korea, such low labor costs provided a competitive advantage which allowed Korea to sell their products cheaper and to build up investment capital.
[501] Rhyu and Lew, "Pohang Iron and Steel Company," p. 340. This announcement came in July 1973, with President Park stating that Korea would increase its steel production from one million tons in 1973 to ten million tons by 1980.
[502] Amsden, "Asia's Next Giant," pp. 301-304. Amsden notes that up to 1978-9, POSCO's prime function was to increase output to satisfy the excess demand from home industry for its products.
[503] Ibid.
[504] Eprime Eshag, "Successful Manipulation of Market Forces: Case of South Korea, 1961-78," Economic and Political Weekly, Vol. 26, No. 11/12, Annual Number (Mar. 1991), p. 635. Eshag notes that in the 1960's the export targets were very closely followed by the Ministry of Commerce and Industry, to the point where they had "a computer printout of progress on targets by industry, by firm and by geographic areas up to date to the preceding day."

view and the business assessment, Park could obtain a solid understanding of what was really happening in any given industry.

Economic history has, over time, produced a conventional wisdom about nationalized industry. Based on long experience in many countries, it posits that nationalized industries are highly subject to the stultifying influences of both monopolistic rent-seeking and moral hazard.[505] Also, with their survival putatively guaranteed through state funding, such entities are less focused on external business performance than internal politics since they are all but immune from Schumpeterian "creative destruction."[506] Consequently, the conventional wisdom is that state-owned industries are invariably inefficient, poorly run and unviable without massive subsidies.

POSCO's performance proved that the conventional wisdom is not always correct. Chung-Hee Park took an intense interest in this project; between 1970 and 1973 he made thirteen trips to the construction site and also regularly conferred with Tae-Jun Pak on the recruitment of top managers.[507] Hiring at POSCO was strictly based on merit; there was no "featherbedding" or nepotism allowed. Those good enough to be hired as POSCO employees received a great deal of both theoretical and practical training in Korea and overseas.[508] Almost six hundred were sent abroad for technical

[505] Anne O. Krueger, "Government Failures in Development," The Journal of Economic Perspectives, Vol. 4, No. 3 (Summer, 1990), pp. 9-23. Krueger does an excellent job of laying out the many pitfalls awaiting nationalized business and the poor judgment of those who so eagerly called for governmental intervention in developing countries during the 1960's. One of her key points is to note that "One must ask why economists were ever comfortable with the simultaneous beliefs that individuals in the private sector act in their self-interest and individuals in the public sector are motivated by a Benthamite vision of social justice."
[506] The interminably extended discussion about where to put the headquarters of British Shipbuilding is an excellent example of this tendency.
[507] Rhyu and Lew, "Pohang Iron and Steel Company," p. 336.
[508] Amsden, "Asia's Next Giant," p. 302.

education.[509] Managers were trained to be able to understand and operate all plant equipment. When the plant was initially started, the best engineers POSCO had were placed on the production line; shift foremen were experienced engineers with college degrees.[510]

Park was determined to see this venture succeed and took a very "hands-on" approach to seeing that it did. Between choosing competent, honest leadership and making sure that leadership knew of the Blue House's strong and continuing interest in POSCO's performance, Park did all he could to mitigate the all but inevitable problems pertaining to state ownership. Park's personal experience in Manchukuo and his study of Japan's economic history had convinced him that "regulated capitalism" was the proper form for Korean industrialization.[511] He looked at POSCO as an unusual circumstance where state ownership was an unavoidable necessity. He knew the problems inherent with such ownership and took pains to insure that they were avoided where possible and kept under control where not.

The nationalization of this industry paid one particularly large dividend for Park's industrialization drive: it allowed governmental interference in both client selection and product pricing. For the purposes of this study, those were critical features since POSCO was directed to provide steel at bargain price levels to domestic customers.[512] Since 80% of all the thick steel plates POSCO produced were going to Korea's shipyards by 1975, the discount rates helped Korea's shipyards work through the

[509] Ibid., p. 305. More than 1500 workers were sent overseas for training between 1968 and 1979.
[510] Ibid., p. 315.
[511] Lee, "Park Chung-Hee," p. 130
[512] Amsden, "Asia's Next Giant," p. 296.

decade-long shipbuilding slump and subsidized an even more important export industry.[513]

Britain and Korea handled the potential synergies of steelmaking and shipbuilding in diametrically opposed fashions. While provision of discounted steel to British shipbuilders was strongly recommended in the Geddes Report, Britain's efforts to encourage this failed completely, running aground on the shoals of government regulation and steelmaker reluctance.[514] Despite the obvious connection and the Geddes Report's urging, the British Government did not consider forcing even a nationalized company such as British Steel to sell at a discount. They did not see such actions as part of their remit as a government. Money for subsidies they might hand out freely but setting pricing policy for a business, particularly to another domestic manufacturer, was not acceptable. The Korean Government had no such qualms and POSCO management would never have even entertained the idea of declining a government directive. If the Korean Government told POSCO to sell steel at a certain price to Korean shipbuilders, they would know arguing was fruitless. They were fully aware that Chung-Hee Park's government would not accept anything less than full and immediate compliance and would compel it if it was not granted freely.[515]

THE VIETNAM WAR AND ITS CONTRIBUTION TO KOREAN INDUSTRIALIZATION

[513] Ibid., p. 296. Amsden here quotes a Paine Webber report analyzing POSCO's suitability as an investment possibility for American capital.
[514] Geddes Report, pp. 58-59.
[515] Given the close relationship between Tae-Jun Pak and President Chung-Hee Park, the matter would almost certainly have been discussed and settled to Park's satisfaction long before a formal directive would have been required. The major difference between Korea and Britain on this issue would have been the presence of a Chung-Hee Park in a position to command a synergistic outcome. He, working through his proxies, the Economic Planning Unit, could demand accurate financial information from both businesses. Park could then order each side to make whatever sacrifices were deemed necessary to provide the desired level of assistance.

President Chung-Hee Park found that 1965 presented him with another golden opportunity to leverage South Korea's political position for economic gain. The United States under Presidents Eisenhower and Kennedy had provided relatively modest amounts of financial and military aid to the government of South Vietnam. What Kennedy might have done had he lived is a moot question; after his November 22, 1963 assassination Kennedy's successor, Lyndon Johnson, chose to make a major commitment of American military forces to South Vietnam.[516] Once that decision was made and implemented, South Korea was requested by the United States on May 1, 1964, to dispatch troops to South Vietnam in a display of anti-Communist solidarity.[517] While the initial number of troops dispatched was small and confined to non-combat forces and medical personnel, the requests from the U.S. escalated rapidly and soon involved combat troops. In 1965 the first combat troops from South Korea, the Tiger Division, were dispatched to South Vietnam. South Korea eventually had as many as two divisions of combat troops serving there along with their auxiliaries, a force which at its height numbered in excess of 50,000 military personnel.[518]

Park was most certainly opposed to Communism and that fact could not have been more clearly demonstrated by his firmly capitalist desire to extract the best deal possible from the Americans in exchange for South Korean military support. He came away with a very good one; South Korea's finances received a major boost from the

[516] Min Yong Lee, "The Vietnam War: South Korea's Search for National Security," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 408. Min notes that General Chung-Hee Park, acting in his capacity as junta leader at his meeting with President Kennedy in November 1961, told Kennedy that South Korea would be willing to assist the United States in South Vietnam with troops should the United States make such a request. Kennedy stated that while he would keep Park informed of future developments in South Vietnam, he hoped such assistance would not be necessary.
[517] Ibid., p. 409. Lee also notes that the South Vietnamese President, Ngo Dinh Diem, had requested assistance from South Korean troops back in April 1962.
[518] Ibid., p. 403.

Vietnam War.[519] In 1966 the U.S. requested a second division of South Korean combat troops for Vietnam. After considerable negotiation, an explicit agreement between American ambassador Winthrop Brown and President Park's Chief of Staff, Lee Tong-Weon, guaranteed the U.S. would do the following:

1. Provide South Korea with additional funding to meet all costs for mobilization, deployment and maintenance of South Korean troops in Vietnam. The U.S. also agreed to cover the costs of mobilizing and maintaining one combat-ready reserve division and one brigade. U.S. support was to cover all supporting units as well.
2. Suspend Military Assistance Program transfers as long as South Korea maintained two combat divisions in South Vietnam.[520]
3. To the extent possible, commensurate with the principles of fair competition, the U.S. would utilize South Korea as a supply base for military equipment, supplies and services to be provided to South Korean troops. Under the same constraints, where possible U.S. Agency for International Development would purchase from South Korean sources goods destined to be used for rural construction, pacification, relief and supply projects in South Vietnam.
4. Increase technical assistance to South Korea in the general area of export promotion.
5. Provide new U.S. Agency for International Development loans for South Korea in addition to the $150 million already designated in May 1965, said

[519] Hak Chung Choo, Effects of the Viet Nam War and the Normalization of Korean-Japanese Relations on Korean Economic Development in the 1960's. (Seoul: Korea Development Institute, 1972), p. 10. Choo notes that "the economic consequences of the Viet Nam War were all favorable."
[520] The Military Assistance Program (MAP) Korea, as with other U.S. Military Assistance Programs, had a procedure for providing excess U.S. equipment to assistance recipients. Much of this equipment was provided to recipients on an "as is, where is" basis and it often needed considerable repair to be made operational. South Korea requested U.S. assistance in outfitting its troops but it wanted new and immediately operational equipment.

loans to be provided under the same eligibility requirements as the initial loan package.

6. Provide $150 million in program loans in FY 1966 to support South Korean exports and development projects in South Vietnam.[521]

These commercial requests were in addition to ten other military assistance requests included in the memorandum, one of which was to "provide over the next few years substantial military equipment for the modernization of the South Korean armed forces.[522] Direct payments from the United States to South Korea between 1965 and 1972 were in excess of 1 billion dollars.[523] This sum does not include the foreign currency remittances provided to South Korea from South Vietnam as payment for South Korean exports or services. Much of this money originated in the U.S., going to South Korea via a short detour through the South Vietnamese Treasury. The United States also in 1971 agreed to provide 1.5 billion dollars to the South Korean military over a five-year period to assist in further modernization of the South Korean military.[524] In short, the Vietnam War remittances provided more money for South Korea's industrialization drive than normalizing diplomatic relations with Japan.

South Korea's investment capital did not come cheaply. The country paid a heavy price for its Vietnam intervention. The butcher's bill was 4,960 Republic of Korea soldiers killed, 10,962 wounded and 6 missing in action. In addition, by 1992 there were almost 37,000 South Korean Vietnam veterans dealing with the aftereffects of Agent Orange exposure. Despite the cost, Park's opinion was that South Korea really

[521] Lee, "The Vietnam War," p. 419.
[522] Ibid. While the South Korean forces dispatched to South Vietnam did have modern equipment with which to fight, only two of the six regiments in South Vietnam when the troops were withdrawn were allowed to take their modern equipment with them back to Korea.
[523] Woo, "Race to the Swift," p. 94.
[524] Lee, "The Vietnam War," p. 425.

had little choice but to become involved in the war. Speaking in Daejeon in 1967, Park made the following statement.

> I will give you a more frank reason for the troop deployment instead of saying, as I have been, that we have to repay our debt or that communization of South East Asia will affect us adversely. We could have chosen not to deploy our troops when asked. Then the two U.S. divisions deployed in South Korea would have been transferred to Vietnam. How could we have been able to stop them while not sending our own forces? We could not have. [525]

This was a legitimate concern. The American ambassador to Korea, Winthrop Brown, had intimated in 1964 that at least some troops would be withdrawn if South Korea did not assist in the war effort.[526] The U.S. was not seeking to extricate itself from South Korea. However, the U.S. was well aware that sending South Korean forces to Vietnam was a much cheaper alternative than the same number of American troops and wanted to take advantage of that cost differential.[527] Consequently, had South Korea not contributed troops a partial drawdown was probable but it almost certainly would not have resulted in all troops being withdrawn.

Despite its losses, the South Korean military gained a lot from the war. Along with a great deal of new equipment, the South Korean military acquired large-scale combat experience, something Korean soldiers had not seen since 1953. This would augment

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[525] Hong-Koo Han, "South Korea and the Vietnam War," Developmental Dictatorship and the Park Chung-Hee Era: The Shaping of Modernity in the Republic of Korea. Editor: Byeong-Cheon Lee. (Paramus: Homa and Sekey Books, 2006), p. 261.
[526] Lee, "The Vietnam War," p. 410.
[527] Woo, "Race to the Swift," p. 93. Woo is here quoting Jack Valenti, Special Assistant to President Lyndon B. Johnson, commenting to Johnson that the cost of sending South Koreans to Vietnam was "peanuts compared to what it would be to send a comparable number of Americans." Jack Valenti to the President, February 25, 1966, Executive File, Box 49, WHCF, LBJ Library.

the lessons learned during the Second Korean Conflict.[528] The two generals who would succeed Chung-Hee Park, Doo-Hwan Chun and Tae-Woo Noh, were both Vietnam War veterans.

THE WORLD MEETS HYUNDAI

The military was not the only group of Koreans that would be involved in, and financially benefit from, the Southeast Asian conflict. In 1965 the Hyundai Construction Company was awarded its first major construction project outside of Korea, a World Bank-funded development project in Thailand.[529] The task was to build a 58-mile (98 km) road through thick jungles between Pattani and Narathiwat. Even though by 1960 Hyundai was Korea's largest construction company, the fact that a Korean firm had won an international construction bid was a major national news story.[530] The initial departure of Hyundai workers to Thailand was broadcast live to the nation by the Korean Broadcasting System.[531] Despite the initial euphoria, once their bid had been accepted and the work started, Hyundai had good reason to wonder if they had been wise to want it.

The litany of problems was long. First, Hyundai's bid of $5,220,000 proved to be far too low as estimated costs of construction equipment and time were much greater than

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[528] Maj. Daniel P. Bolger, "Scenes from an Unfinished War: Low-Intensity Conflict in Korea, 1966-1969," Leavenworth Papers, No. 19, U.S. Army, Combat Studies Institute (Ft. Leavenworth: U.S. Government Printing Office, 1991), pp 75-87. The Second Korean Conflict was the series of guerilla attacks on South Korean and American objectives between 1966 and 1969. This included the 20 January 1968 assassination attempt on President Park by the North Korean 124th Army Unit, commonly referred to as the Blue House Raid.

[529] Woo, "Race to the Swift," p. 96. Woo lumps this Hyundai project in with other Vietnam-war era Korean projects and intimates that this award was given to Hyundai as part of the American economic remuneration to Korea for its assistance in Vietnam.

[530] Hyundai Heavy Industries, Traditions of Excellence: Hyundai Shipyard, Yesterday and Today. (Seoul: Hyundai Heavy Industries, 1998), p. 37. Hyundai had some experience in building to foreign construction specifications. They had performed a considerable amount of work for the U.S. military in Korea.

[531] Kirk, "Korean Dynasty," p. 76.

predicted.[532] Second, the Koreans found themselves working in much more difficult circumstances than they had expected or had ever experienced. Thailand's drenching monsoon season washed out much of their work, a problem exacerbated by the fact that they had not properly followed some construction specifications. There were certain aspects of the project where Hyundai had tried to "cut corners" as they sometimes did in Korea. That approach quickly redounded to Hyundai's detriment. [533] As examples, they had originally purchased used and unsuitable construction equipment which quickly broke down and had to be replaced. Eventually Hyundai ended up buying new, top-of-the-line equipment to complete the project. Hyundai initially set wage scales for Thai workers at a much lower rate than Koreans received. That attempt ended when Hyundai supervisors found themselves confronted by angry Thai workers armed with knives and pistols.[534] With their personnel literally held at gunpoint, Hyundai quickly realized they had no choice but to concede pay parity. When the project was finally satisfactorily completed, Hyundai had lost more than $3 million dollars on it.[535] Hyundai learned some tough lessons in Thailand, two of which were that if a company intends to be successful in international construction, it needs to meet international quality standards and be very respectful of the customs and culture of the local citizenry. Most important, however was that the project had been satisfactorily completed. It took more time and was more costly than expected, but it did get successfully finished.

To say it was a difficult project for Hyundai is to understate the problem. Hyundai's founder, Ju-Yung Chung, describes it as a "complete failure" and "a coming-of-age"

[532] Ibid., p. 75.
[533] Ju-Yung Chung, 시련은 있어도, 실패는 없다 (Ordeals but No Failures). (Seoul: Jae Samkihoek, 1991), p. 99. In this autobiography, Chung wrote, "I took risks and I was burned."
[534] Kirk, "Korean Dynasty," p. 76.
[535] Steers, "Made in Korea," p. 64.

initiation.[536] However, it did three very good things for Hyundai. First, it gave many of Hyundai's managing personnel, Ju-Yung Chung not least, some very useful experience in dealing with international business requirements. He compared this project's effect on Hyundai with that of a frog peering out from a well for the first time in its life.[537] Second, it demonstrated to Chung-Hee Park and the remainder of the South Korean Government's inner circle that Hyundai Construction had the capability of taking on international projects and successfully completing them. Third, it showed Ju-Yung Chung just how accommodating Park and the South Korean Government were willing to be for a major exporter.[538] This last would be a matter of major importance to Hyundai as they were an industrial upstart trying to break in to Korea's top economic stratum. In 1965, the majority of Korea's ten major *chaebôls* were still those who had reached the top through import substitution practices.[539] Ju-Yung Chung and Hyundai came away from their Thailand experience knowing there was change in the air and, as a Korean business hoping to obtain favorable treatment from Korean officialdom, being a solid exporter was the path to success.

A KOREAN HORATIO ALGER

Hyundai's founder, Ju-Yung Chung, was a true Horatio Alger, rags-to-riches entrepreneur who had done incredibly well in rising from agrarian poverty to being the head of a major construction company in South Korea. Chung was the eldest son of a farmer in Asan, a small village located in what is now North Korea. Asan lies approximately thirty miles north of the eastern end of Korea's Demilitarized Zone.

[536] Kirk, "Korean Dynasty," pp. 76-77.
[537] Steers, "Made in Korea," p. 63.
[538] Hyundai, "Traditions," p. 37. The Pattani-Narathiwat Highway Project represented 4.3% of Korea's total exports for 1965. When Se Yung Chung had asked if Hyundai could bid on the project, he had been told that they would have to show they could afford to spend $2 million on the project. The South Korean Government quickly provided a letter guaranteeing that Hyundai would have the needed funding. This large and immediate display of support for exporting businesses impressed Chung greatly.
[539] Kirk, "Korean Dynasty," pp. 58-59.

Chung's family was poor but they had the means to send Chung to an elementary school run by his grandfather.

Table 23: CHANGES IN RANKING OF THE TEN MAJOR *CHAEBÔLS*[540]

Ranking	1960	1972	1979	1987
1	Samsung	Samsung	Hyundai	Hyundai
2	Samho	LG	LG	Samsung
3	Gaepung	Hanjin	Samsung	LG
4	Taihan Electronic Wire	Sinjin	Daewoo	Daewoo
5	LG	Ssangyoung	Hyosung	SK
6	Dongyang	Hyundai	Kookje	Ssangyoung
7	Geokdong Shipping	Taihan Electric Wire	Hanjin	Hanhwa
8	Hankook Glass	Hanhwa	Ssangyoung	Hanjin
9	Donglib	Geokdong Shipping	Hanhwa	Hyosung
10	Taechang Spinning	Daenong	SK	Lotte

By the time he was in his teens he had recognized that there had to be an easier way to make a living than farming rocky, relatively unproductive soil. After several earlier attempts failed, in 1934 Chung finally managed to permanently escape his home town and go to Seoul. There, after an initial stint as a stevedore at the Inchon docks, he found work delivering heavy sacks of rice by bicycle. He obtained this position despite the fact that he had no idea how to ride a bicycle when he accepted the job, a fact he neglected to mention to the rice store proprietor. In fact, Chung assured the proprietor that he could ride a bicycle quite well. Chung crashed the bicycle numerous times before he learned to ride it properly but he did quickly acquire bicycling skill

[540] Young-Chol Cho, "The *Chaebôl* Regime and the Developmental Coalition of Domination," Developmental Dictatorship and the Park Chung-Hee Era: The Shaping of Modernity in the Republic of Korea. Editor: Byeong-Cheon Lee. (Paramus: Homa and Sekey Books, 2006), p. 120. Chart data is taken from information provided by the Korean Fair Trade Commission.

and soon became very good at the job. He did so well in fact that the owner of the rice store gave Chung much more responsibility and taught him the rice vending business. Moreover, upon his retirement in 1937, he gave the store to Chung.[541]

Chung, who had married a girl from his village during his time in Seoul, was doing quite well with it until the Japanese shut down all Korean-owned rice shops in 1939. Although the shop had been ordered closed as a war measure, which meant without compensation, Chung had been able to save some money and soon started looking for a new business opportunity. Undaunted, he returned to his father's village for a short while and purchased some land. Then, in 1940, he returned to Seoul and bought a car repair shop with money he borrowed from the rice mill owner with whom he had worked when he owned his store. The mill owner lent Chung the money to buy the shop and lent him even more money to rebuild it after it burned down a month after the initial purchase.[542] Chung's comment on this matter exemplified his whole business philosophy. He said, "Trust is wealth. When you have trust, there's always money."[543]

While running an automobile repair shop was a far cry from delivering rice by bicycle, one thing tied the two together: Chung entered both businesses with great determination despite knowing nothing whatsoever about how to make them work. Chung had never driven a car or worked as an auto mechanic.[544] However, he did understand that his primary customers, the Japanese, were anxious to have their automobiles back as soon as possible and that they were willing to pay a lot of money

[541] Steers, "Made in Korea," p. 37. Steers comments that the store owner gave the store to Chung rather than his own "irresponsible" son.
[542] Kirk, "Korean Dynasty," p. 27.
[543] Ibid.
[544] Steers, "Made in Korea," p. 37.

for the privilege. Chung commonly worked overnight, learning the manuals and breaking down cars to see how they actually worked. He became a very good automobile mechanic and his business soon became a notable success. However, it was nationalized by the Japanese in 1943 to help with the war effort and Chung again received no compensation.

Chung had often had to go to the Japanese colonial government to get payment for his auto services. While there he noticed that people constructing buildings were receiving a great deal more money than people repairing automobiles. When his automobile repair shop was closed down, he worked for a while as a subcontractor for a Korean construction firm doing work for the Japanese. He left after a short period to go back to his home town once more, but this short experience taught him that he enjoyed construction work. When he left Asan and returned to Seoul in 1946, Chung opened another auto repair shop but did not forget construction. Chung's brother, In Yung, had learned enough English to be understood and made some contacts with U.S. military personnel associated with the American Military Government in Korea. Chung had observed that the Americans needed things built in a hurry and had a lot of money; he was determined to earn some of it. With his brother negotiating for him with engineers from the U.S. Eighth Army and Chung negotiating for himself with the Korean Government, Hyundai found a considerable amount of construction work available in a subcontractor role while still maintaining the automotive repair business.

Because of their experience of working with Americans and knowing American military contracting requirements, when the Korean War broke out on 25 June 1950 and American supplies and troops started pouring into Busan, Ju-Yung Chung and his

team were perfectly placed. The war years for Chung and Hyundai were very lucrative, with Chung working very hard to establish a reputation as a man whose commitment to job performance was absolute. Chung and Hyundai suffered several instances where job commitments had been interrupted by fighting. Rather than use that as an excuse, once the fighting stopped Chung and his men went back to the job and completed it despite taking a loss on the work.[545] American contracting officers came to know Chung as a man who might charge a hefty fee but would be certain to have the task done on time and to acceptable standards.[546] Consequently, Chung received a great deal of work and the breadth of Hyundai's expertise grew with each job. With most of South Korea left in ruins after the war ended in 1953, there was no letup in Hyundai's schedule as all of the country's major cities except Busan and most of its infrastructure needed to be rebuilt. Hyundai was not a *chaebôl* in the 1950's; they were just one of Korea's more competent construction companies. Still, they were growing and they were doing it relatively honestly and without bribing government for favors. This relative dissociation with the Rhee or Chang Myeon regimes would pay dividends when Chung-Hee Park and the military staged their coup in 1961.

One incident in the early 1960's is extremely indicative of Ju-Yung Chung's multi-faceted business strategy. As the largest construction company in Korea, Hyundai used a great deal of cement, most of which had to be imported. Chung did not like paying import prices or Korean customs duties. In 1962 Park's military junta decided to make Korea self-sufficient in cement and provided loans to three Korean companies to build cement factories. Hyundai leaped at the chance to be one of them,

[545] Kirk, "Korean Dynasty," p. 70.
[546] Ibid., p. 71.

receiving a $4.25 million loan at very favorable rates and terms.[547] This was Hyundai's first attempt at building a manufacturing plant. Unfamiliar with the process, they hired an American firm, George A. Fuller Company, as technical support. Fuller recommended using another American company, Allis-Chalmers, as general contractors and process-management directors. Hyundai agreed and built the plant under Allis-Chalmers' direction. It was completed in 1964 and its output immediately cut Hyundai's cement costs in half.[548]

Even more important than its cement output was the plant's service as a training facility for Hyundai managers to learn how to build a manufacturing facility.[549] Hyundai took every opportunity to have its personnel shadow the foreign technicians and garner every scrap of information possible. Table 24 shows clearly how quickly Hyundai progressed in "learning-by-doing." Also, Ju-Yung Chung always worried about depending on external sources; his thinking was that he could only count on what he and Hyundai actually controlled. The cement industry was just the first large-scale example of this trait which would be much more clearly manifest in the construction of Hyundai's shipbuilding and motor car industries. Chung's approach was to always learn as much as possible from the foreigners but, once the lessons were learned, Hyundai quickly dispensed with external help.[550]

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[547] Kirk, "Korean Dynasty," p. 59. Hyundai did not have to start paying the loan back for two years, after which it had ten years to complete repayment at an interest rate of 6.75 per cent. By comparison, according to the Economic Planning Board's *Major Statistics of Korean Economy* cited by Dornbusch and Park, the real interest rate in Korea for the years 1960-1964 was 31.1 per cent for "curb" market loans. Rudiger Dornbusch and Yung Chul Park, "Korean Growth Policy," Brookings Papers on Economic Activity Vol. 1987, No. 2 (1987), p. 413.

[548] Steers, "Made in Korea," p. 57. A considerable amount of the cement produced in this plant would be exported to Vietnam for use on Hyundai construction projects undertaken for the U.S. and Korean military.

[549] Amsden, "Asia's Next Giant," p. 296.

[550] Kirk, "Korean Dynasty," p. 102.

Table 24: HYUNDAI'S INVOLVEMENT IN HYUNDAI CEMENT PLANT ERECTIONS/EXPANSIONS[551]

	Initial Plant 1964	First Expansion 1968	Second Expansion 1974
Basic Engineering	Allis Chalmers	Fuller	Fuller
Detailed Engineering	Allis Chalmers	Fuller	Fuller, Hyundai
Procurement	Allis Chalmers	Hyundai	Hyundai
Supervision	Allis Chalmers	Hyundai	Hyundai
Construction	Hyundai	Hyundai	Hyundai
Start-Up	Allis Chalmers	Fuller, Hyundai	Fuller, Hyundai

CHUNG-HEE PARK AND JU-YUNG CHUNG

Ju-Yung Chung made his first serious impression on President Chung-Hee Park with Hyundai's completion of the Pattani-Narathiwat highway. Hyundai's relative anonymity to that point was actually good for Chung and Hyundai; they had not been big or connected enough to be targets of the anti-*chaebôl* anger which accompanied the junta into power in 1961.[552] During the Pattani-Narathiwat road project Hyundai had also expanded its efforts into assisting the U.S./Korean forces during the Vietnam War. Primarily employed as a subcontractor, Hyundai workers dredged the Mekong River, developed much of the U.S. naval base at Cam Ranh Bay, and even provided laundry and dry-cleaning services.[553] Park, who always paid very close attention to Korean export numbers and who personally chaired a monthly trade promotion meeting with senior officials and business leaders, would have seen Hyundai's growing contribution to Korea's export totals. His knowledge of Hyundai's contributions in this sector undoubtedly influenced him favorably toward the company. Park's approbation would prove to be very useful to Hyundai.

[551] Amsden, "Asia's Next Giant," p. 267.
[552] Kirk, "Korean Dynasty," p. 61.
[553] Ibid., p. 77.

Since 1957 South Korea had been considering the possibility of building a dam on the Soyang River, 65 miles (108 km.). Though the dam promised to provide badly needed hydroelectric power and flood control, no action had been taken on the project. In 1967 Park decided the project had waited long enough and directed the Korean Ministry of Construction to solicit bids for building a dam. Hyundai was invited to bid although the Ministry of Construction had already invited one of Japan's leading engineering firms, Nihon Kyoei, to submit plans. At a meeting to discuss the issue it transpired there was a difference in opinions about how to build the dam. The Japanese wanted to build a concrete dam 413 feet (126 m.) in height; Chung and Hyundai argued for a zone-fill dam made of earth that would be 328 feet (100 m.) in height. The Hyundai proposal would be 30 per cent cheaper than the Japanese proposal but the weight of Ministry opinion and professional qualifications was with the Japanese. The Japanese rather rudely questioned Chung's knowledge of dam construction by asking about his qualifications, a query which he did not answer. The meeting came to no conclusion.

The issue was submitted to President Chung-Hee Park for consideration. Park, ever the professional military officer, looked at the contending plans and saw a security flaw the Japanese had overlooked. A hardened concrete dam upstream of Seoul, if breached by North Korean rockets or bombs, would send hundreds of thousands of tons of water cascading toward Korea's capital. Conversely, an earthen zone-fill dam would be much more likely to accept such damage without failing. If it did fail, the failure was much more apt to be only partial thus minimizing the downstream damage. Based on the national security issues involved, Park requested that the Japanese and

the Ministry of Construction return and once again review the dam's construction. Two months later, the Japanese returned and agreed that Chung's proposal was the better of the two. They also privately rendered Chung a profound apology for their questioning of his competence. The South Korean Government issued a contract to Hyundai for construction and the dam was completed in 1973.

This incident solidified Park's appreciation for Chung's engineering capability and it was not long before Chung was called in again for a major national project. This time, the proposal was one that would change the economy of South Korea like nothing had since the Korean War. Chung-Hee Park had been to Germany on an official state visit and seen the German Autobahn. Park immediately recognized how helpful such a road system would be in Korea and returned intent on finding a way to obtain one. Park's goal was to have a major motorway traversing the country from Seoul in the northeast to Busan in the southwest and connecting the major cities in between. When he announced Korea's Second Five-Year Plan in April 1967, construction of this road was a major component.

As this would be the largest civil engineering project ever undertaken in Korea, the outcry was immediate. Many thought it would be too expensive or questioned the country's ability to actually perform the job.[554] A thorough World Bank study of the proposal both questioned Korea's ability to accomplish the project and deemed it unnecessary for Korea even if it could be done.[555] Park had the Ministry of Construction, the Korean Army Corps of Engineers, the Ministry of Finance and the Seoul Metropolitan Government prepare estimates for the project. With the exception

[554] Steers, "Made in Korea," p. 67.
[555] Ibid.

of the Seoul Metropolitan Government, all of the proposed estimates came back with extremely high costs; the highest, from the Ministry of Construction, was 65 billion won.[556] Because of Park's position as President he wielded enough power to get this project started. He was well aware, however, that if it turned out to be a debacle his position was going to be very seriously weakened. Both Park and his critics realized this highway project was going to be a major national challenge. Park needed to make absolutely certain of both its physical and economic viability prior to initiation since once started, both his and his government's credibility rested heavily on its successful completion.

Park sent for Ju-Yung Chung to come to the Blue House. This was their first private face-to-face meeting. Park told Chung he was aware of Hyundai's success in road construction despite difficult conditions in Thailand. Now Park wanted to know if a road between Seoul and Busan really was feasible. If it was, Park wanted Chung to provide a cost estimate. Park gave Chung twenty days to return with his figures.[557] Having received his marching orders and knowing exactly how important this project was to both South Korea as a nation and Hyundai as a firm, Chung turned immediately to work. He understood that failure in this matter was not an option.

Chung immediately gathered Hyundai engineers and explained the nature of the task at hand. In the next 20 days he repeatedly overflew the area by plane and helicopter and consulted with his engineering staff. They determined that it could be done and Hyundai had the capability to accomplish it. When he returned to Park, his answer

[556] Chung, "Ordeals," p. 108. The Seoul Metropolitan Government's estimate of 18 billion won was considered not valid as it was quickly realized they had no idea of the costs of building highways outside of Seoul.
[557] Kirk, "Korean Dynasty," p. 78.

was unequivocal: "I can do it."[558] Hyundai's bid was 38 billion won.[559] Park took him at his word and told Chung to assemble a consortium of builders to accomplish the task. Construction work was initiated 1 February 1968.

Chung and Hyundai received 40 per cent of the total work, including the most difficult parts.[560] There were many difficulties, particularly at the Dangjae Tunnel between Okcheon and Daejeon, where there were numerous cave-ins and worker deaths.[561] Chung had to take drastic actions to insure that progress continued, such as doubling wages and spending $8 million on earthmoving equipment.[562] Chung himself was almost living on the construction site. He often encountered President Park there; Park was receiving daily updates about progress and personally visiting the project as often as possible.[563] The Gyeongbu Expressway opened on 7 July 1970, almost a year earlier than expected.[564] Hyundai made only a modest profit on the job but it was completed successfully and ahead of schedule. What was most important about this project was that it cemented a solid relationship between Chung-Hee Park and Ju-Yung Chung. From this time on they would be good friends and Chung would often have dinner with Park at Cheong Wa Dae. Park often referred to Chung as his "Minister of Construction."[565] From this project until the end of Park's life, he and Chung would maintain a close friendship, something which would be of great benefit to Hyundai.

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[558] Steers, "Made in Korea," p. 68.
[559] Chung, "Ordeals," p. 108.
[560] Ibid., p. 113. Hyundai was awarded a 105 kilometer span between Seoul and Osan and a 28 kilometer span between Okcheon and Daejeon.
[561] "60 Years of the Republic: The Gyeongbu Highway." Chosun Ilbo, 29 August 2008. Web. The article notes that 77 workers died in construction accidents during the project.
[562] Steers, "Made in Korea," pp. 68-69.
[563] "60 Years of the Republic: The Gyeongbu Highway," Chosun Ilbo, 29 August 2008. Web.
[564] Ibid.
[565] Steers, "Made in Korea," pp. 69-70.

IMPETUS FOR THE "BIG PUSH"

Hyundai was working in Vietnam, building the Soyang Dam and the Gyeongbu Expressway, and just about to get involved with Middle Eastern projects when Korea received a major foreign policy/national defense shock. U.S. President Richard Nixon's announcement of his "Guam Doctrine" on 25 July 1969 took President Chung-Hee Park and the Korean Government very much by surprise. The new American foreign policy position called for the U.S. to continue providing a nuclear "umbrella" to friendly countries that requested one. However, those countries would now be asked to provide the vast majority of their own defensive manpower. What Nixon was in effect saying was that there would be no more Vietnams for the United States.

In 1969 approximately 56,000 U.S. troops were stationed in Korea as part of the defense against the military threat posed by the North.[566] The announcement of the Guam Doctrine caused Park to start seriously questioning the reliability of the United States as an ally.[567] That logic led immediately to considerations of what South Korea needed to maintain its own defense. Park asked the Korean military to conduct an investigation of South Korean indigenous defensive capability and the results shocked him.[568] He was informed that without U.S. military assistance South Korea would be in very grave danger within a week.[569] There was no Korean small arms or ammunition manufacturing capacity and little stockpiled ammunition not under joint

[566] Bolger, "Unfinished War," p. 131.
[567] Chung-Hee Park, "To Build a Nation," p. 135.
[568] Horikane, Yumi. "The Political Economy of Heavy Industrialization: The Heavy and Chemical Industry (HCI)," Modern Asian Studies, Vol. 39, No. 2 (May, 2005), pp. 371-373.
[569] Ibid.

U.S.-South Korean control.[570] The investigation showed that South Korean forces restricted to solely South Korean resources would have approximately three days' worth of ammunition in a serious combat situation.[571]

North Korea at the start of the 1970's had approximately three times the military capacity of the South and was well equipped with large-scale rifle, cannon, tank and ammunition manufacturing capacity.[572] The South Koreans, by contrast, had none of these things and were tremendously dependent on both U.S. manpower and logistical support. With American help South Korea had been fighting the Second Korean Conflict since 1966. [573] It was still ongoing in 1969 and the North Korean campaign of seaborne and DMZ infiltration continued; American and South Korean targets were under guerilla attack just as they had been for the preceding three years.[574] At that time Park and his ministers had no justification for thinking that the Second Korean Conflict was about to end. It would have been much more logical to assume that a post-Guam Doctrine U.S. was preparing to remove troops from Korea and that the North would increase the tempo of their military strikes commensurately.

Having watched the minimal, non-violent response of the U.S. to North Korea's 1968 *U.S.S. Pueblo* capture and its 1969 destruction of a U.S. EC-121 electronic reconnaissance plane, Park recognized the U.S. was an increasingly flimsy support

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[570] Ibid.
[571] Ibid. This lack would have been pointed out for the great danger that it was by Generals Doo-Whan Chun and Tae-Woo Roh, among others. As Vietnam War veterans, they would have recently experienced what a voracious appetite for materiel modern warfare displays. Any South Korean military leader with recent combat experience, particularly large-scale combat experience, would have been extremely concerned. The military truism, "Amateurs talk tactics; professionals talk logistics," has grown more accurate over time.
[572] Ibid.
[573] Bolger, "Unfinished War," pp. 139-140.
[574] Ibid.

upon which to rest South Korea's national existence.[575] This view would only have been strengthened by President Nixon's 1969 initiation of actions aimed at normalizing diplomatic relations with the People's Republic of China and the 6 July 1970 announcement that the U.S. was withdrawing the 7th Infantry Division's 20,000 troops from Korea.[576]

Given the confluence of events that were taking place between 1969 and 1972, Park would have been remiss had he not started having South Korea make preparations for "going it alone."[577] Much of what he did in the years from 1969 to 1973 was based on justified concerns about Korean national security.[578] Obviously, if South Korea was going to be required to defend itself, it had to have a defense industry to make arms and ammunition. The POSCO integrated steel mill was an integral part of the preparation for that industry and part of the impetus for its development came from national security considerations.[579] The remaining items of the "Big Push" as well as the *Yushin* Constitution would be impelled by the same considerations.[580]

[575] Sung Gul Hong, "The Search for Deterrence: Park's Nuclear Option, " The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), pp. 483-490. In the aftermath of President Nixon's withdrawal of 7th Infantry Division from South Korea in 1971, President Chung-Hee Park seriously investigated the possibility of South Korea clandestinely developing nuclear weapons. Informed of this intent, the U.S. determined that the actual production of nuclear weapons was well within the capabilities of the South Korean economy. They brought tremendous diplomatic and economic pressure to bear on Park to dissuade him from doing so.
[576] Lee, "Developmental Dictatorship," p. 343.
[577] Horikane, "Political Economy," pp. 372-373.
[578] Chung-Hee Park, "To Build a Nation," pp. 142-147.
[579] Rhyu and Lew. "Pohang Iron and Steel Company," pp. 323.
[580] Woo, "Race to the Swift," p. 119.

THE COMPREHENSIVE PROGRAM FOR HEAVY INDUSTRIES

On 24 June 1970 Deputy Prime Minister Hak-Yeol Kim announced that the Korean Government was beginning a new program to emphasize large-scale industrialization. Called the "Comprehensive Program for Heavy Industries," its proclaimed intentions were to guide the construction of "Four Core Projects." These projects, including a special steels plant, an iron casting plant, an integrated machinery/machine tool plant and a large-scale shipyard, were announced just before the Fourth Korea-Japan Ministerial Conference in July 1970.[581] At the Conference, the Korean side presented the four projects as POSCO-related, with the shipyard to be a major consumer of POSCO production. Their intention was to induce loans and technical assistance from Japanese sources to facilitate building these projects.

While the "Four Core Projects" were actually intended to be the nucleus of an indigenous Korean defense industry, the Korean Government explicitly denied that aim.[582] The Japanese delegation were not deceived and soon realized that assistance given to these projects would violate Japan's "Three Principles on Arms Exports," the tenets of which forbade selling arms to countries either actually or potentially engaged in war.[583] In the Conference and in later meetings the Japanese sounded cautiously optimistic about a $100 million dollar loan but Korean negotiators were unable to obtain a firm commitment.[584] With regard to shipyard construction, the Japanese did conduct a feasibility study in Korea headed by the Ministry of International Trade and

[581] Horikane, "Political Economy," p. 375.
[582] Ibid.
[583] Ibid., p. 374.
[584] These negotiations were taking place at very near the same time as Chinese Premier Chou En-Lai announced Communist China's "Four Principles" of foreign trade. Among these principles was that China would not have any dealings with companies that had substantial investments in either South Korea or Taiwan. As China increased in economic power, this restriction weighed more heavily on potential investors in South Korea.

Industry Heavy Industry Bureau Chief, Shoichi Akazawa. After their tour, Akazawa's group decided that large-scale shipbuilding in Korea was impractical and advised the Shipbuilders' Association of Japan that cooperation with Korea in this matter was unwise.[585] In the event, the eagerly anticipated Japanese investment funds did not materialize and Korea was left to its own devices to find the capital for these projects.[586]

Ju-Yung Chung and Hyundai were fully aware of the "Four Core Projects" and were already planning to be the company which built the shipyard. Chung and his Hyundai executives had been looking since 1969 for a way to enter into the shipbuilding business. Chung was not intimidated in the slightest by the idea of technical challenge of building floating structures. His attitude was that it was just like constructing steel structures on shore, something Hyundai had done many times. With that experience Chung had no doubt they could certainly build a steel structure that floated.[587]

Moreover, all the necessary supporting factors for a bold move into a new venture were now in place for Hyundai. Hyundai was Korea's preeminent construction company and had a long track record of successfully completed major accomplishments. It possessed a talented group of executives with considerable international experience and a hard-working, competent workforce. The Gyeongbu Expressway was now completed, thus making for quick and easy transit between Seoul and Korea's east coast, where the shipyard would be located. Possibly most important, Ju-Yung Chung enjoyed the confidence and trust of President Chung-Hee Park. If Chung told Park he could get something done, Park would take him at his

[585] Hyundai, "Traditions of Excellence," pp. 41-42.
[586] Horikane, "Political Economy," p. 377.
[587] Hwang, "Let There be a Yard," pp. 26-27.

word and back Hyundai with full Korean Government support.[588] Chung was well aware that his credibility was on the line with every project but he welcomed the challenge.[589]

In 1970, as has been mentioned earlier, shipbuilding was booming and the demand for huge oil tankers was tremendous. The closure of the Suez Canal and the economics of shipping oil put a premium on VLCCs. Ju-Yung Chung decided that this was a very good way to make lucrative export earnings and plunged ahead into shipbuilding. Hyundai purchased land at Mipo Bay in 1970 and signed technical agreements with Scott Lithgow and A&P Appledore in September 1971.[590]

Building the shipyard was a matter of finding sufficient investment capital. The way Ju-Yung Chung accomplished this is the stuff of Hyundai legend. The estimated total cost of the project was $63 million dollars. Hyundai could supply $10 million from their corporate resources and the South Korean Government would provide another $10 million.[591] It had been hoped that the remaining $43 million would be provided by the Japanese; that hope came to naught. Chung, therefore, was on his own to obtain the needed funding. After Hyundai opened its London office in 1971, Chung went to several European countries in search of venture capital for his shipyard. Word had spread about the Japanese assessment of Korea's shipbuilding capability and Chung's

[588] Kim and Park, "The *Chaebôl,*" p. 281
[589] Ibid., p. 287.
[590] Hyundai, "Traditions of Excellence," p. 43. The technical service from A&P Appledore and Scott Lithgow cost Hyundai $1.7 million and 0.5% of vessel sales price.
[591] Kirk, "Korean Dynasty," p. 98. Kirk notes that the remaining $43 million was more than the value of all Hyundai assets combined.

inquiries met with little interest and no success.[592] When he went to Britain, it was his last hope.[593]

In London Chung met with Charles Longbottom, the chairman of A&P Appledore, in March 1971 to discuss Hyundai's potential as a ship builder. Chung not only wished to employ Longbottom's firm as the designers for Hyundai's proposed new shipyard, he hoped to persuade him to write a letter to Barclay's Bank recommending they grant Chung a loan for the amount necessary to build the shipyard. Chung, through his translator, spoke about Korea's high labor quality, its incredibly low wages and Hyundai's record of solid accomplishment. Longbottom responded by noting that Korea had no confirmed buyers for its vessels and no track record of shipbuilding capability. At this point, Chung pulled out his wallet and extracted a 500 won note.[594] The note had a picture of Admiral Sun-Shin Lee's "turtle ship" on it.[595] Chung showed this to Longbottom and said, "Korea built an ironclad ship in the 16th Century. You cannot compare Korea with England, which did not start building steel ships until the 19th Century. The idea of shipbuilding in Korea was simply postponed; once it starts Korea's hidden potential will blossom."[596] This plea did not completely sway Longbottom; he did have to make a trip to Korea to see for himself what Hyundai had accomplished.[597] However, what he saw there convinced him. He did eventually write

[592] Hyundai, "Traditions of Excellence," p. 44.
[593] Steers, "Made in Korea," p. 2. Steers here is quoting Ju-Yung Chung's front-page article, "Have a Goal!" The article was published in the *Hyundai Newsletter* of August 1990.
[594] Chung could not have done that in 2013; there are no 500 won notes any more. They have been replaced by a coin bearing a picture of a flying crane.
[595] These innovative ships were Admiral Sun-Shin Lee's primary weapons when he defeated a much larger Japanese invasion force off the coast of Geoje Island in 1592. Bruce Cumings describes one of these ships as having "iron plates on its top, a large sail reminiscent of Chinese 'junks,' a dozen sailors pulling long oars from within, cannon at every point to blow the Japanese out of the water, and a dragon at the head to scare the hell out of everyone." Koreans are very proud of this victory and there is a huge and impressive monument to Admiral Lee in the Geoje Island town of Okpo.
[596] Kirk, "Korean Dynasty," p. 98
[597] Hyundai, "Traditions of Excellence," p. 45.

the letter and the loan was granted subject to issuance of a Korean Government loan guarantee.[598]

In the conservative and skeptical world of international shipping, finding buyers for ships to be delivered by a shipbuilder with no shipyard and no track record of building ships was no mean task. It posed a problem even for a man as indomitable as Ju-Yung Chung. However, in order for the loan to receive the required guarantee from the Korean Import-Export Bank, Chung had to find one. Finally, through the good offices of Charles Longbottom, Ju-Yung Chung was introduced to George Livanos, a wealthy Greek shipowner. Livanos owned a fleet of tankers, was said to be in the market to purchase some newbuildings, and was intrigued by this brash new entrant into shipbuilding.

Chung's intention was to build VLCCs, huge tank vessels for which the selling price in 1971 was approximately $36 million each. When they started to discuss business, Chung, armed only with a picture of a sandy beach at Mipo Bay and a drawing of a 260,000 deadweight ton tanker, presented Livanos with a standard market rate offer of $36 million per vessel.[599] Greek shipowners, however, have a well-deserved reputation for driving a hard bargain and Livanos was no exception. He knew Chung badly needed a buyer and insisted on a heavily reduced price. They eventually settled on a 16 per cent discount, with Livanos offering a price of $62 million for two ships and a fixed delivery date of two years and six months from contract signing.[600] Livanos was required to provide a down payment of 10 per cent of the purchase price

[598] Steers, "Made in Korea," p. 3. Barclay's Bank actually put together a consortium of European Banks to make the loan, Banks from Britain, West Germany, Spain, France and Sweden all contributed. Hyundai actually received an increase in the size of the loan. The final amount was $50,570,000.
[599] Hyundai, "Traditions of Excellence," p. 46.
[600] Ibid.

at that time.[601] Included in the contract were hefty penalties for late delivery.[602] Chung knew that if Hyundai did not have the vessels ready on time they were going to pay an extremely heavy price.

Chung was taking a huge risk with this investment and would undoubtedly never have received the necessary funding without the Korean Government's loan guarantee, a guarantee which almost certainly would not have been given in a country with independent banks. The initial funding of the Hyundai Ulsan Shipyard is a sterling example of the intersection between business, politics and finance in South Korea during the Park era. A company without Hyundai's past accomplishments and Ju-Yung Chung's close relationship with President Park would have been very unlikely to have received the initial bank funding, much less a government guarantee. Because Park knew Chung and had witnessed Hyundai's successes in Thailand, the Soyang Dam and the Gyeongbu Expressway, Hyundai received governmental support that sound banking principles would normally deny. Park's gamble on Hyundai paid off spectacularly well for Korea but the fact it did so takes nothing away from the fact it was a tremendous risk to take.

"THERE WERE NO SUNDAYS FOR US"

Ju-Yung Chung returned to Korea in September 1971with a signed contract and a tremendous amount of work to do. Hyundai had committed itself to build one of the world's largest shipyards and two of the world's biggest ships in two and one-half years. It was a daunting task; most developed shipbuilding countries would have

[601] Ibid.
[602] Ibid.

anticipated shipyard construction alone to take a minimum of three years.[603] There were many both inside and outside of Korea who questioned Hyundai's capacity for meeting a challenge of the magnitude it had taken on. Most professional industry observers did not think it was possible.[604]

The loan guarantees were formally approved by the Korean Government in December 1971 and the money received. Hyundai's first move was to select and dispatch 60 engineers and naval architects to Scott Lithgow Shipyard in Clydebank to learn how they were building VLCCs.[605] Under the terms of Hyundai's contract with Livanos, Hyundai was obligated to build their vessels to the same specifications as Scott Lithgow's vessels.[606] Their second move was to begin planning how to turn a sandy beach and empty fields into a shipyard. Hyundai had already purchased the land and relocated the people living there starting in mid-1971.[607] By the end of December 1971, A&P Appledore design work as well as some site preparation had already started; on March 23, 1972 the official groundbreaking ceremony was conducted. President Chung-Hee Park and Hyundai Chairman Ju-Yung Chung together pressed the button that set off the first detonation. It was a major milestone for Chung and Hyundai but there was still a long way to go.

Hyundai moved two-thirds of all the heavy equipment owned by the company to Mipo Bay to work on the new shipyard. 1,200 workers were spending day and night

[603] Hwang, oral interview, 24 November 2009.
[604] Ibid.
[605] Hwang, "Let There be a Yard," p. 41. Sung Hyuk Hwang, a naval architect, was one of the initial group of Hyundai personnel sent to Scotland. They departed for Scotland in March 1972.
[606] Amsden, "Asia's Next Giant," p. 276.
[607] Hyundai, "Traditions of Excellence," p. 50. This was yet another case where Korean law permitted the expropriation of private property for business purposes in a manner which would have been extremely difficult in the United Kingdom. The people were housed in better quarters than they had previously enjoyed and they were paid compensation for their land at reasonable rates. However, they did not have any choice in the matter.

working on the shipyard. The work day began at 6 A.M. and often extended until 3 A.M. the next morning.[608] Ju-Yung Chung said the following:

> Most of the workers would be up at the break of day, splash a little water on their face and head for the work site, where they would stay until late into the night. Returning to their dormitories, they would be so tired that they would fall asleep with their shoes on. This did not happen for just one or two days; it went on like this for an entire year. I too, practically lived at Ulsan.[609]

Another Hyundai manager remembered, "There were no Sundays for us. We got to go up to Seoul to see our families only once or twice a year. For three years we arrived at the site looking at the stars and left the site looking at the stars."[610] Hyundai's building plan called for building two drydocks of 700,000 deadweight ton capacity.[611] As the drydocks were being built, construction of the first vessel was progressing at the same time. Sung-Hyuk Hwang remembered that, "As soon as the concrete base in the middle part of the building dock had solidified, the keel of the VLCC was laid upon it. As the dock expanded, so did the ship."[612]

Building both the shipyard and the ships simultaneously posed a number of serious problems. As mentioned earlier, cranes are the "muscles" of a shipyard, used to lift heavy sections into place during construction. Difficulties arose when construction required the use of high tonnage lifting equipment that had yet to be installed. One of the best-known stories in Hyundai history comes from this period. When the bow block of the first VLCC was ready to be placed in the drydock, there was no lifting appliance in the shipyard capable of doing so. The "Goliath" 450-ton gantry crane

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[608] Amsden, "Asia's Next Giant," p. 278.
[609] Hyundai, "Traditions of Excellence," p. 50.
[610] Ibid., p. 47.
[611] Ibid., p. 51. The first drydock was 400 meters (437 yards) long, 80 meters (87.5 yards) wide and 12.7 meters (13.9 yards) deep. The second was 500 meters (546.8 yards) long and the same width and depth.
[612] Hwang, "Let There be a Yard," p. 30.

Hyundai had ordered from Krupp had yet to be delivered. The bow block weighed more than 50 tons and no single crane or combination of cranes currently available could be utilized to make the lift.

Logic and safety dictated that the block should not be moved until a properly capable crane was in place. The problem with that was that the 450-ton "Goliath" crane would not be installed for another three months. Ju-Yung Chung carefully considered the issue and decided that if the heavy block was put on a trailer with a bulldozer attached to the trailer from behind to act as a brake, it could be driven down an inclined ramp and delivered to the bottom of the drydock safely. There was no doubt Chung's plan was a risky venture. If the trailer broke loose the resulting crash would smash the bow block and do considerable damage to the still-unfinished drydock. Chung recognized the danger but knew better than anyone else that something had to be tried; Hyundai was already behind in construction and could not afford a three month delay. He directed that the block be securely mounted on a trailer and the bulldozer attached. The actual move was a very anxious moment but Chung's idea worked perfectly and the block was safely delivered into place at the bottom of the drydock. Chung's innovative response to this problem is now a part of Hyundai lore and has been used for decades as a company training tool to demonstrate the Hyundai motto, "Nothing is impossible."

The infrastructure construction tasks that are necessary to create a shipyard are legion and most of them needed to take place at the same time as ship construction. One of the biggest ones took place at the entrance to Mipo Bay. Because of its north-south orientation, Mipo Bay was known to experience extremely large waves during

typhoons, a nearly annual event in Korea. Since these would have wreaked havoc on the shipyard, HHI had to build a 700-meter breakwater. This entailed not only dumping huge boulders and large amounts of crushed rock progressively further into the ocean but also making very large numbers of tetrapods, four-footed interlocking concrete structures that look like a child's jacks, and placing them on the ocean-facing side of the breakwater.[613] In addition to the breakwater and the construction of the drydocks, Hyundai was building office structures, training facilities, fabrication buildings, plate shops, blasting shops, painting shops, machine shops, roads, cafeterias, dormitories for 5,000 workers and all the other appurtenances necessary to a shipyard all at the same time as well as building two ships.[614] It was truly a massive undertaking and nothing like it had ever been done before. Ju-Yung Chung and Hyundai certainly deserve the largest share of credit for successfully entering Korea into the top ranks of world shipbuilding. Korea Shipbuilding and Engineering Company (KSEC) had been building ships for a longer period but, as shown by Table 25 below, their output was always insignificant compared to that of Hyundai.[615] It was Hyundai that made Korea a feared competitor in the world shipbuilding industry. All other Korean shipyards followed the path they blazed.

In the end Hyundai did what they had said they would. Despite all the obstacles, they built the shipyard and the ships at the same time and came surprisingly close to having the vessels delivered on time.[616] The first Livanos vessel, the *Atlantic Baron*,

[613] Hyundai, "Traditions of Excellence," p. 52.
[614] Ibid., p. 55.
[615] Hwasook Nam. Building Ships, Building a Nation: Korea's Democratic Unionism Under Park Chung-Hee. (Seattle: University of Washington Press, 2009), pp. 206-207. The Hyundai Ulsan Shipyard would eventually hire many of the experienced workers away from KSEC. KSEC claimed that "it had lost one-third of its best engineers to HHI." This is very probable as Hyundai would have provided higher salaries and better career opportunities.
[616] The vessels were actually launched on time. Post-launch outfitting and trials took longer than expected so there was a seven month delay in the actual vessel delivery.

was launched on 15 February 1974, christened on 26 June 1974 and delivered on 27 November 1974.The total construction time was three years and two months, eight months later than the contract specification but an amazing feat nonetheless given all that had to be done to make it possible. The vessel went on to work a full and satisfactory 16 year career before it was lost to an accident in 1991.

With the delivery of *Atlantic Baron*, Hyundai had proven itself deserving of being included among the world's preeminent shipbuilders. President Park and his wife Yuk Young-Su attended the christening, which was broadcast live to all South Korea over national television. Park congratulated all Hyundai employees on their accomplishment and noted that "this is a symbol of our advancing national power."[617] Chung-Hee Park had always taken a great deal of interest in the construction of the shipyard. Sung-Hyuk Hwang, who became Hyundai's Senior Vice President in charge of ship sales, made the following comment about Park and the Mipo Bay shipyard:

> Park often expressed his joy and wonder at the rapid daily developments. He frequently visited the shipyard to see the progress for himself and he was also fond of being briefed about it from time to time. He thought of Hyundai Shipyard as one of *the* symbolic projects representing his "Modernization Plans for Korea," something to which he devoted himself entirely at the time. His personally hand-written Chinese calligraphy, **造船**立國 (조선입국, or "Founding the nation with shipbuilding"), still decorates the walls today.

Given the near-absolute power that Park wielded in the Korean Government, his close interest in this project and dedication to its success undoubtedly was a tremendous aid to Hyundai in their effort, particularly since Hyundai had certainly lost money on the

[617] Hyundai, "Traditions of Excellence," p. 55.

Table 25: OUTPUT OF PRINCIPAL KOREAN SHIPYARDS, 1973-1983 (Gross Tons)[618]

YEAR	HYUNDAI	KSEC*	DAEWOO	SAMSUNG
1973	126,000	2,980	--	--
1974	451,700	2,980	--	--
1975	512,000	75,400	--	--
1976	573,000	52,450	--	--
1977	505,568	76,322	--	--
1978	614,790	116,694	--	--
1979	383,763	103,060	--	13,858
1980	518,565	60,448	--	52,000
1981	907,040	137,655	21.500	126,000
1982	861,206	186,988	148,329	73,400
1983	864,782	129,573	128,270	123,974

*Korea Shipbuilding and Engineering Company

construction of its first two vessels.[619] There would not have been anything the Korean Government could have done to help that would not have been done.[620]

[618] Amsden, "Asia's Next Giant," pp. 272-273. Statistics are derived from data provided by the Korean Ministry of Commerce.

[619] Nam, "Building Ships," p. 205. According to Nam, Hyundai ended up using more than 60% more material than originally anticipated in building the first two ships due to construction errors. S.H. Hwang noted that the expenses for *Atlantic Baron* were much higher than anticipated due to demands by Livanos personnel for the use of more expensive materials, e.g., bronze casings rather than steel ones for salt water pumps, etc. The original Scott Lithgow specifications required. Livanos also argued for, and received, a higher quantity of spare parts.

[620] Hyundai was undoubtedly benefited by the August 1971 Emergency Decree for Economic Stability and Growth, which placed a moratorium on "curb" loans. Due to the opacity of Korean *chaebôl* financial holdings and the lack of accurate public records, it cannot be determined if Hyundai itself had taken loans from the "curb" market. It is all but certain, however, that at least some of its subcontractors had done so and this decree quite probably saved many of them from bankruptcy.

In addition to governmental help, Hyundai had another very great advantage in the completion of this project. They were able to draw from the knowledgeable and experienced personnel working in other sections of the Hyundai *chaebôl*. Hyundai Construction had many highly experienced engineers and construction supervisors in their workforce. These men had dredged channels and built breakwaters, roads, buildings and fabrication shops elsewhere; doing it at Mipo Bay was nothing new for them. For Hyundai the fact that seconding these people to the shipyard project was an internal company issue obviated the need for external recruitment; moreover, their salaries and other financial expenses could also be charged to their parent Hyundai unit at cost.

This represents a sizable internal subsidization of the shipyard construction effort and stands in direct contrast to the experience of British shipyards, which were generally individual enterprises. Even if they were receiving subsidies from the British Government, any assistance from external personnel received by them had to be paid for at regular commercial rates. Chung-Hee Park's insistence on creating "national leaders" of sufficient size to compete with the world's largest companies paid major dividends in this instance.

FIGHTING THROUGH THE SLUMP

When *Atlantic Baron* sailed away from Ulsan in late November 1974, she left behind a shipyard that had orders for another eleven VLCCs, including *Atlantic Baron*'s sister ship, *Atlantic Baroness*.[621] However, the world oil slump had already started to

[621] Hwang, oral interview, 24 November 2009. This vessel would never be delivered to the Livanos Group. Contractual difficulties caused by Hyundai's unilateral declaration of a 10 per cent price increase resulted in four years of arbitration that was eventually dropped by HHI. According to Hwang, Hyundai was legally at fault here. There was no contractual justification for them to simply change the

affect the world shipping market. Of those eleven VLCCs, three of them were canceled by their prospective owners and that eventually caused Hyundai's Ulsan Shipyard to have cash flow problems.[622] Kurt J.W. Schou had been manager of Odense Shipyard in Denmark, a major VLCC building yard. He was induced by HHI in 1972 to become the first President of the Hyundai Ulsan Shipyard. Schou made a trip to Europe in search of new business in the summer of 1974 and returned greatly concerned about future prospects. Schou stated that his discussions with potential clients invariably went as follows: "Why are you talking about VLCCs? The era of the VLCC is gone forever. Don't talk nonsense. Let's change the subject."[623] Schou even had shipowners bluntly tell him that his newly constructed shipyard was doomed to failure.[624]

Schou's experience accurately reflected the shipping industry's thinking and was a harbinger of much bad news to come. 1975 was a terrible year in the shipbuilding industry with new orders at less than half those of 1974; 115 ships and 29 million tons of shipping capacity were canceled by July.[625] As for HHI, it would not receive another VLCC order again until 1986. For a shipyard specifically designed to build VLCCs, as was the Hyundai Ulsan Shipyard, the outlook was dire.[626]

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terms of a signed agreement and the Livanos Group was well within their rights to refuse to accept the price increase. The vessel known as the *Atlantic Baroness* was renamed prior to delivery as the *Korea Sun.* She was delivered on 31 August 1976 and became a part of Hyundai Merchant Marine.

[622] Hyundai, "Traditions of Excellence," p. 62. Ju-Yung Chung directed that all of the canceled VLCCs be completed as he believed they would be able to be sold at some point. He proved to be correct in that assumption. They were the initial vessels of what is now known as Hyundai Merchant Marine. However, that did not help cash flow in 1975.

[623] Hwang, "Let There be a Yard," p. 53.

[624] Ibid.

[625] Todd, "Shipbuilding," p. 211. Todd cites Lloyd's Register of Shipping Annual Report, 1982 showing new orders for 1974 at 28.37 million gross tons and new orders for 1975 at 13.79 million gross tons. Hyundai, "Traditions of Excellence," p. 62. It should be noted that the figures for 1975 were so bad that Hyundai omitted them in their formal history of the Hyundai Ulsan Shipyard.

[626] Hyundai, "Traditions of Excellence," p. 62, 67.

Hyundai's order books were full and the yard was still being constructed in 1974 so they had a small bit of breathing space. However, the knowledge that their new and expanding facility was designed to build a type of ship that was now completely out of favor led them quickly to start an intensive search for new business.[627]

Almost as an afterthought, during his European trip Schou had chosen to visit the President of Kuwait Shipping Company (KSC). He found that Kuwait Shipping Company was looking for a yard to build some 24,000 deadweight ton multipurpose freight carriers, vessels not even a tenth as big as the VLCCs in which Hyundai specialized. They had a contract with Govan Shipyard in Scotland to provide these vessels but Govan could only build five per year. Disregarding the fact that Hyundai had no experience on this type of vessel, Schou induced KSC to have Govan subcontract some of the work to Hyundai. Hyundai ended up building 24 multipurpose freight carries for KSC and did so to KSC's complete satisfaction.[628] This work kept much of Hyundai Ulsan Shipyard occupied for almost five years and made Kuwait Shipping Company (later United Arab Shipping Company) a very satisfied customer. In remembering how important this work had been to HHI at the time, Mr. Sung-Hyuk Hwang stated that "the order for the twenty-four cargo ships [from KSC] was a blessing from God at a time when we had run out of works and the VLCC era was coming to a close."[629]

Mr. Sung-Hyuk Hwang was Hyundai Heavy Industries Senior Vice President for Ship Sales when he resigned from HHI in December 1989. He had been involved in vessel

[627] Ibid., p. 48. Hyundai had announced a shipyard expansion in 1975 which would make it the world's largest shipyard.
[628] Ibid., p. 63.
[629] Hwang, "Let There be a Yard," p. 69.

sales since the inception of the yard in the early 1970's. In describing these years, he commented that the reception Hyundai sales staff often received from potential customers was as follows:

> Japan will suffice. She has more experience than Korea and has developed heavy industries with higher skills. She can be our business partner. Korea? Too risky. We cannot be partners with you. Please look for someone else. Good luck![630]

Hwang noted that overcoming such attitudes required HHI to repeatedly demonstrate its willingness to go anywhere, do anything and successfully complete everything they started. For the shipbuilding industry as a whole, the years between 1974 and 1979 were desperate ones. As difficult as times were, however, Hyundai Heavy Industries gained market share in each of those years.[631]

There were two keys to Hyundai's success despite the industry's dismal state. The first was its hard-charging, "nothing is impossible" attitude of eagerly seeking out and accepting all available work. Hyundai sales people were not waiting for work to come to them; they were out chasing it down. [632]The second was Hyundai's positioning as a diversified company capable of doing anything related to shipbuilding and marine-related construction work. Many companies were not willing to step outside their area of specialization. Hyundai was. Ju-Yung Chung did not draw a differentiation between construction and shipbuilding and neither did his sales staff.[633] This ability to

[630] Ibid., p. 134.
[631] Hyundai, "Traditions of Excellence," pp. 61, 67-68, 103.
[632] Given the incredible willingness of Hyundai to pursue all available work anywhere, one can only imagine what Ju-Yung Chung and his management team thought when they read of British shipyards such as Cammell Laird and Harland and Wolff actually paying customers to withdraw their work and take it elsewhere.
[633] Hwang, oral interview, 24 November 2009.

quickly move into new sectors as they appeared served Hyundai well as it meant they found enough work to keep them operating when other firms failed.[634]

The work from KSC made Ju-Yung Chung start thinking that Hyundai needed to go where the money was, which in the 1970's was the Middle East. Awash in petrodollars, the region was beginning to make infrastructure improvements and was trying to develop industries that would enable more of the profit from their oil resources to be kept in the region. Hyundai actively searched for job opportunities all over the Persian Gulf area. They found them but also found the competition to be very stiff.

As an upstart new entrant in the region, Hyundai realized they would have to show they could provide equal quality for less cost to be considered legitimate competitors. The majority of their potential customers were state ministries. These people knew the major American, European and Japanese construction companies. They did not know Hyundai and there would have to be an inducement to learn. Hyundai's tools to effect that inducement were familiarization, high quality, low prices and bribery. Since 1974 Hyundai had been "inviting scores of political and business leaders from the Middle East to tour the Ulsan Shipyard."[635] Below is one description of what happened when these "leaders" came to Korea:

> Hyundai would pick up the first-class air fare for an "orientation" that might begin with a stopoff in the fleshpots of Bangkok and then on to Seoul. "Film starlets would be in the greeting party at Kimpo Airport," said journalist Bruce Cheesman. "The guy would be taken to a *kisaeng* [636] party or room salon"—a private room where the liquor flowed freely from a bottle poured by a hostess

[634] Amsden, "Asia's Next Giant," pp. 286-287.
[635] Hyundai, "Traditions of Excellence," p. 64.
[636] *Kisaeng* are Korean female entertainers whose work often includes prostitution.

> hired to serve every need of the guest. "He could be sure of a different girl every night. It was wall-to-wall room service, order what you like. Champagne, women, anything." In Hyundai's case the fun got better when the guest arrived in Ulsan away from prying eyes and rival spies.[637]

Hyundai's "orientations" paid dividends and influential Middle Easterners began to know who Hyundai was. Having opened offices in Iran and Saudi Arabia, Hyundai began to win contracts there. Hyundai in 1975 won a $10 million contract with the Iranian Government to build a shipyard and marine railway in Bandar Abbas and a $114 million order to build the Arab Shipbuilding and Repair Yard in Bahrain.[638] Establishing this record of competence was critical to earning the right to compete for Saudi Arabia's Jubail Industrial Harbor Project.[639]

JUBAIL: THE SUCCESS THAT SECURED HHI'S FUTURE

In 1976 Saudi Arabia announced a huge infrastructure project for its Eastern Province city of Jubail. The Jubail Industrial Harbor Project (JIHP) was an adjunct of the Jubail Industrial City Project, arguably the world's largest civil engineering project at the time. Hyundai Engineering and Construction won the $941 million contract to construct the JIHP. This was an incredibly big project; the JIHP required the pouring of 1.1 million cubic meters of concrete and the use of 4.4 million cubic meters of rock.[640]

The most difficult part of the project was the requirement to build the Open Sea Tanker Terminal, a 3.48 kilometer (2.09 mile) long pile/jacket mounted structure

[637] Kirk, "Korean Dynasty," pp. 86-90. Kirk clearly notes, however, that the Koreans were not doing anything different than most of the other companies soliciting business in the Middle East. Bribery was, and remains, a normal part of business there.
[638] Seung-Ho Kwon and Michael O'Donnell. The Chaebol and Labour in Korea: The Development of Management Strategy in Hyundai. (New York: Routledge, 2001), p. 58.
[639] Ibid.
[640] Hyundai, "Traditions of Excellence," p. 66.

suitable for berthing and loading up to four 300,000 DWT tankers simultaneously. The structure was to be built approximately seven miles from shore at the end of a long causeway in water depths varying from 3 meters (1.1 yards) to 29 meters (31.7 yards). It required approximately 104,000 tons of steelwork, mostly in the form of piles, jackets and deck structures.[641] Most of this steelwork was constructed at the Hyundai Ulsan Shipyard.

This was yet another case where Ju-Yung Chung's experience led him to disregard the conventional wisdom on building. Chung was advised to have the piles and jackets constructed on site; he refused and directed they be built at HHI to insure quality and save on labor costs.[642] The 89 jackets weighed approximately 500 tons each and were roughly ten stories high. As if the fabrication task alone was not difficult enough, once these huge structures were fabricated, Hyundai faced the problem of getting them to Saudi Arabia over typhoon-swept seas. Chung solved this problem by using two barges, one of 15,800 tons and a second of 5,500 tons, connected nose-to-tail by wire hawsers. This assemblage was then connected to a 10,000 horsepower tugboat and towed the 6,750 miles from Mipo Bay to Jubail. 35 such trips were made; there were no losses and only two minor accidents.[643] None of these cargoes was ever insured. Since the jacket legs were hollow, Chung devised a way of sealing them so that if a barge had capsized the jackets would still have floated and could have been retrieved by another vessel.[644]

[641] Nicholas J. Burt and Richard Harris, "Design Installation and Testing of Belled Pile Foundations," Conference Paper, Offshore Technical Conference, 5-8 May 1980, Houston, Texas. Doc. I.D. 3872-MS.
[642] Hyundai, Traditions of Excellence," p. 66.
[643] Ibid., p. 66-67.
[644] Steers, "Made in Korea," p. 114.

What the Jubail project did for HHI was to guarantee a very large quantity of work until 1979. In addition, this work was paid for in hard currency, something Korea desperately needed in 1975. Obtaining this nearly one billion dollar contract for Korea was a spectacular financial achievement on the order of Chung-Hee Park's normalization of relations with Japan or the Vietnam War capital influx.

Having this guaranteed work meant that HHI could afford to accept what they knew would be losses in learning how to build different types of vessels. With the VLCC era at what looked like a permanent end, HHI had to learn to build whatever its sales staff could contract. Forced by circumstances to diversify, HHI learned how to build almost everything in the commercial spectrum and thus became arguably the world's most knowledgeable shipyard as well as its largest one.[645] Demonstrating their ability to build almost anything, between 1975 and 1980 HHI built work barges, cargo barges, jacket barges, pipelay barges, sand dredgers, general cargo vessels, large bulk carriers, small bulk carriers, roll-on- roll-off vessels, forest products carriers, container ships, tug boats, car/bulk carriers, floating cranes, pure car carriers and small tankers. In addition to these types of vessels, in 1980 Hyundai would begin fabricating jackets and spars for offshore work.[646] By 1980 it was certain that Hyundai Heavy Industries was solidly established as one of the world's best shipyards with a capability of building almost anything that floated.

Three other things that HHI did also greatly enhanced their international reputation. First, HHI developed its own marine engine building facility. Hyundai Engine Manufacturing Co. was founded in 1978 and promptly obtained licenses to build

[645] Hyundai, "Traditions of Excellence," p. 55. With the addition of the No. 3 Drydock, Hyundai officially became the world's largest shipyard.
[646] Ibid.

MAN, Sulzer, B&W and SEMT-Pielstick engines.[647] HHI could therefore avoid the costs of having to buy engines from other countries. Second, HHI established its own casting plant. HHI was able to cast its own propellers and rudder horns, thus ending the necessity for the shipyard to make purchases of these items from Japan.[648] Third, HHI established Hyundai Electrical Equipment Manufacturing Corporation. This permitted Hyundai to make all its own electric motors.[649] With these three units up and in operation, by 1980 Hyundai was one of only a handful of shipyards in the entire world that could make all of the major components for ship construction in its own facilities.

"IMITATION IS THE MOST SINCERE FORM OF FLATTERY"

If Hyundai had any doubts about having achieved a successful entry into the top echelons of world shipbuilding, they would have been quelled by the 1979 entry of Samsung into the shipbuilding market, followed by the 1981 entry by Daewoo. Once Hyundai had proven that shipbuilding was a lucrative way to meet export targets and earn large amounts of hard currency, these two *chaebôls* decided that the field could not be left strictly to Hyundai and started building their own shipyards. With their additions to Korea's shipbuilding totals, Korea in 1982 finally passed Germany in world shipbuilding tonnage and became the world's second-leading shipbuilding nation.

Japan in 1982 was a long way ahead but the Koreans were gaining and in 1999 would catch and surpass the Japanese to become the world's leading shipbuilding nation. For a country which had almost no shipbuilding in 1972 to have come to lead the world in

[647] Amsden, "Asia's Next Giant," p. 280.
[648] Hyundai, "Traditions of Excellence," p. 69.
[649] Ibid.

less than three decades was an incredible accomplishment. President Chung-Hee Park did not live to see Korean shipbuilding reign supreme but Ju-Yung Chung did. Chung lived until 2001. One must assume he took his full share of pleasure in knowing that he and his friend and fellow economic warrior, Chung-Hee Park, had set in motion an industry that had, against heavy odds, become the best on Earth.

Table 26: COMPARISON OF HYUNDAI AND WORLD SHIPPING ORDERS, 1972-1982[650]

YEAR	WORLD MARKET		HYUNDAI	
	New Orders	Market Share	New Orders	Market Share
1972	29,567,000 GT	100%	250,000 GT	0.8%
1973	73,601,000 GT	100%	950,000 GT	1.0%
1974	28,370,000 GT	100%	600,000 GT	2.1%
1975	13,793,000 GT	100%	N.A.	N.A.
1976	12,937,000 GT	100%	266,000 GT	2.1%
1977	11,091,000 GT	100%	463,000 GT	4.2%
1978	8,026,000 GT	100%	374,000 GT	4.7%
1979	16,843,000 GT	100%	946,000 GT	5.6%
1980	18,969,000 GT	100%	1.030,000 GT	5.4%
1981	16,877,000 GT	100%	843,000 GT	5.0%
1982	11,187,000 GT	100%	292,000 GT	2.6%
1983	19,423,000 GT	100%	2,075,000 GT	10.7%

[650] Hyundai, "Traditions of Excellence," pp. 61, 68, 103.

CONCLUSIONS

At the start of this discussion, the questions to be answered were these: how could Britain, with its rich seafaring history and numerous technological and economic advantages, so completely lose this industry? Conversely, how could poor, backward South Korea, with no seafaring history worthy of note since the 16th Century, have come to eclipse not only the British, but the world, in the building of ships? What did South Korea and Britain do differently that led to such diametrically opposed outcomes? What were the major factors in each country that influenced their respective shipbuilding industries to travel such divergent paths?

If one starts measuring in 1965, any comparison between Britain and Korea showed Britain with all the advantages: world's second-largest shipbuilder, a long-developed industry, a large body of experienced shipbuilding personnel, one of the world's biggest shipping fleets and the support of a much richer country. Britain was still less than a decade away from having been the world's largest shipbuilder. Korea's shipbuilding industry was miniscule and still spent as much, if not more, time building and repairing wooden ships than it did steel vessels. In 1965 it would have been a safe assumption that no major commercial shipping firm knew Korea even had a shipbuilding industry. A suggestion to any worldwide shipping firm that in another decade they might wish to buy vessels from a Korean shipbuilder would have been met with disbelieving laughter. A sporting event between two such unevenly matched sides would almost certainly not be permitted. Yet by 1982 the Koreans were the world's second largest shipbuilders. They had all but seen off their European

competition[651] and were gaining rapidly on the world leader, Japan. So, the question to be answered is this: what did Korea and Britain do differently that produced such a surprisingly unexpected outcome?

That difference in outcome hinges on the differing national treatment of three critical factors: shipbuilding technology, labor relations and government economic policy. South Korea and Britain approached these matters in very divergent ways and that variance in approach was in large measure responsible for the difference in outcome. Neither country was able to act in a totally unconstrained fashion; there were both economic and historic forces shaping the actions taken by Britain and South Korea. South Korea, however, as a much poorer country ruled by a quasi-dictatorship and under serious external threat, had considerably more latitude in its scope of action than Britain did and considerably less to lose from exercising a strictly mercantilist economic philosophy. From very shortly after the military coup in 1961, the Chung-Hee Park-led South Korean government effectively operated a national command economy with the power to completely control what freedoms businesses and individuals were permitted to exercise. Untrammeled by a South Korean National Assembly that possessed little independence at best and which during his regime was often nothing more than a rubber stamp for executive decisions, Chung-Hee Park could unilaterally take diplomatic and economic actions that no British Prime Minister would have even considered without extended Parliamentary consultation and general agreement among affected parties.

[651] Rother, "Restructured West European Shipbuilding Industry," p. 5. Writing in 1985, Rother comments, "Though the situation is different from country to country, Western European shipbuilders have learned their lessons. Capacity reduction of almost 50% has already made large shipbuilding disappear from Europe."

Given Britain's internationally diverse economic interests and its long-established tradition of constitutional monarchy, British governments had many more binding obligations to consider when making and carrying out policy. In addition, political constituencies that were tremendously important in Britain, such as the financial industry and organized labor, either did not exist in South Korea or possessed so little political influence that their interests could swept aside with impunity. Britain's latitude for unilateral action was even further circumscribed after 1973 due to commitments stemming from its entry into the European Economic Community. In short, the South Koreans were free to utilize every diplomatic and economic tool available to the mercantilist developmental state while the British were restrained by the limitations inherent in their multi-level regulatory state.[652]

SHIPBUILDING TECHNOLOGY

With regard to technology, Korea as a late-industrializing nation had the good fortune to have its first truly major shipyard designed at the end of the long postwar boom. When construction began on the Hyundai Ulsan Shipyard in 1972, all of the major design features required to implement modern flow-line production techniques and drydock fabrication had been put into practice elsewhere. The Koreans and their British shipyard design consultants, A&P Appledore, had the results of those innovations available to them and selectively adopted those which best suited their

[652] Woo-Cumings, Meredith, ed., The Developmental State. (Ithaca: Cornell University Press, 1999), pp. 1-14. Woo-Cumings defines the term "developmental state" as "shorthand for the seamless web of political, bureaucratic and moneyed influences that structures economic life in capitalist Northeast Asia." Elaborating on this statement Woo-Cumings sees the "developmental state" as being one that is "plan-rational" and "partners with the business sector in a historical compact of industrial transformation." In practice this means that the developmental state has a strong industrial policy and actively uses state power to induce/persuade/coerce private businesses and individuals to conform to that policy. The regulatory state, by contrast, generally eschews industrial policy and restricts itself to restraining private business from taking actions detrimental to the public weal.

intended goals.[653] Constructing Hyundai's new shipyard was an expensive and difficult task but by 1975 they possessed the world's largest and most modern shipbuilding facility. Their management and workforce still needed to gain shipbuilding experience but the technology and infrastructure supporting their effort was world-class.

The British shipbuilding industry, on the other hand, had a great deal of capital investment in long-established shipyards with already sunk plant and machinery costs. Their problem was that almost all of those facilities were obsolescent if not obsolete and becoming more so by the day. Worse, British shipyards for the most part were located in places where neither the surrounding areas nor the water depth were conducive to expansion. Those two problems generally meant there was no way to satisfactorily change the yard layout to meet the requirements of modern flow-line production and large vessel construction. Out of date as their facilities were, however, they did solid work with what they had; British shipyards built good, sound, seaworthy ships and were well experienced in doing so. "Clyde-built is Best" was more than just a Glasgow rallying cry; there was enough truth in it for the statement to be known around the world in 1950. The ships British shipyards delivered in the 1950's were fine vessels, built with the old methods to the old standards.

Unfortunately for the British shipbuilding industry, their craft administration method of building them was, like their construction facilities and shipyard locations, unsuited to the very different vessels rapidly coming into demand from the mid-1950s. To remain competitive, British shipbuilding needed to quickly and radically transform its

[653] A&P Appledore was just one example of many instances where internationally competitive parts of the British shipbuilding and marine equipment industry redirected their efforts toward Asian customers.

construction methods, its facilities and, most of all, the mindset of its workforce. However, none of those factors was very amenable to change. Sir Kenneth Berrill, a senior British civil servant who headed the Central Policy Review Staff and was chief economic advisor to the Treasury, described Britain's postwar mentality very well when he said, "We had won the war and we voted ourselves a nice peace."

British shipbuilders in the 1950's, 1960's and 1970's were competing in an increasingly worldwide industry which was experiencing Schumpeterian "creative destruction" on steroids. Ships, ship production methods, ship production facilities and the shipbuilding business model were all changing drastically and doing so at breakneck speed relative to prior industry transitions. The shipping industry now wanted series construction of larger, standardized vessels and it wanted them built for a fixed price and delivered at a time agreed at contract signing.

For British shipbuilders long accustomed to building one-off, bespoke and relatively smaller vessels on a cost-plus basis, adjusting to the industry's paradigm shifts posed a tremendous challenge. They did not respond well to it. The changed building circumstances exposed serious planning and facility deficiencies in the British shipbuilding industry, deficiencies which resulted in unintentional underbidding of contracts and inability to deliver vessels on time. Both of these problems severely affected profitability and made it an increasingly difficult achievement. To cite just one example, Britain's largest shipbuilder by tonnage, Harland and Wolff, returned its last profit as a major shipbuilder in 1964.[654] This was despite spending considerably

[654] Johnman and Murphy, "British Shipbuilding," p. 155.

more capital on modernization than any other British shipyard. Britain's other merchant shipbuilding yards were in equivalent or worse condition.

As has been mentioned earlier, Britain was the only major shipbuilding country to have no growth in its shipbuilding market share after World War II. A critical personnel factor contributed to that outcome. For British shipyards utilizing craft administration techniques to oversee production, expansion under any circumstances was going to be difficult because of manning constraints posed by an insufficient number of skilled workers. Depending as it did on personnel with much previous internal shipyard training and direct construction experience, craft administration of production posed a major scaling problem to plans for expanding British production. Had shipbuilders wished to expand, sufficiently experienced skilled craftsmen capable of properly administering production were in short supply and there was no quick way to increase their numbers.[655] It generally took five years of shipyard work for an apprentice to obtain journeyman status; it took several more years serving in positions of regularly increasing responsibility to become a master craftsman. Under craft administration of production the master craftsmen and foremen often informally served as design engineers at critical points. To do so successfully they had to have judgment guided by training and long experience. There was no shortcut to obtaining that knowledge; the tuition dues of time in service had to be paid.

[655] This was one of the reasons that no British shipyards in the 1960's or 1970's ran more than a skeleton second shift, if indeed they even did that much. Not only did the workers not want to work that shift, under the craft administration of production there was seldom, if ever, anyone to guide them if they did. The knowledgeable senior personnel capable of providing such guidance, by virtue of their union seniority, only worked the day shift. The BAH Report cited this lack of a second shift as one of the major impediments to increasing productivity in British shipyards. Korean shipyards routinely run second shifts and will operate third shifts as well when the production schedule calls for it.

Since the craft unions controlled admission to their apprenticing programs and there was no path to journeyman/master craftsman other than through apprenticeship, expanding the number of skilled workers was critically dependent on increasing apprenticeship training. This posed a problem since the shipbuilding unions were no more optimistic about British shipbuilding's future than the shipyard owners. They were very chary of having too many trained masters and journeymen and generally restricted admission to the anticipated numbers required to replace retirees and people leaving the industry. Consequently, a manpower limitation choke point existed for British shipbuilding that Korean shipbuilders, utilizing bureaucratic administration techniques for production oversight, did not face. Needing large numbers of degreed engineers, Korean shipyards quickly developed the practice of recruiting them from universities or other businesses and incorporating them into their production systems.

The British, however, would not do this. As the BAH Report noted, British shipyard management was prejudiced against utilizing degreed engineers, believing them to be lacking in practical application skills. Even if hypothetically accepting the very questionable assumptions that shipyard management was willing to employ such engineers and they were available to be hired, there was another major obstacle. Personnel attempting to shift between trades in British shipyards found it all but impossible in most cases due to union reluctance to accept entrants from outside the apprenticeship system. Consequently, it is almost certain newly hired degreed engineers would not have been allowed into the applicable craft union. Any attempt to force such acceptance would have led to major industrial strife. Consequently, the method Korea's shipyards later adopted to answer calls for ramping up production was not a solution that British shipyards could practically hope to implement.

To use a military analogy, Korean shipyards oversaw shop floor production with "shavetail" second lieutenants, young engineers right out of four-year courses at university. Korean shipyards could do this because they had invested heavily in design and planning departments, the shipyard equivalent of a general staff. These departments provided those second lieutenants with extremely specific and detailed orders. All the second lieutenants needed to do was follow their orders and direct their subordinates accordingly.

The British, on the other hand, had invested very sparingly in design and planning departments. Their designers laid out the general plan of the vessel but left a considerable amount of the design work to be done on the shop floor by foremen and master craftsmen, the equivalent of long-service noncommissioned officers. This saved British shipyards a considerable sum on design and planning personnel but had two very serious deficiencies. First, it meant a lack of consistency in work since there was no guarantee that any two given craft foremen would handle the same problem the same way. This was a huge problem when producing vessels in series. Second, it takes four years to produce a second lieutenant. It takes from fifteen to twenty years to produce a senior noncommissioned officer. Korea could produce at least three second lieutenants in the time it took Britain to produce one senior noncom. Britain's craft administration of production oversight was poorly suited for quickly increasing output because there were often not enough experienced personnel to meet requirements and training new personnel took so long.

Retrospective analysis shows that to keep abreast of the industry's progress British shipbuilding would have had to undertake a major, drastic and very expensive reform incorporating flow-line production techniques, bureaucratic administration of production, drydock construction and greatly expanded planning departments. Even with complete cooperation from all involved parties and unlimited financial support, conditions which were always highly unlikely and which in the event did not occur, these changes would still have been extraordinarily difficult since they required extensive facility rearrangements/modifications and the recruitment of many degreed specialist engineering personnel. Given Britain's engineering deficit, many of those personnel would have had to be recruited from outside the country. To be fully competitive some facilities would have needed to be closed and relocated to greenfield locations with deeper water depths. Worse, these massive changes would have had to come at a time when the need for them was not yet completely apparent but profit margins and available capital to implement them were shrinking.

In the end the adjustment required simply asked too much of an undercapitalized, deeply conservative industry scarred by its past history. At the time when their future viability demanded they be most responsive to critically important modernization requirements, British shipbuilders refused to recognize the impending danger. As their international competitiveness slowly slipped away they remained content with a situation where their order books were full and "reasonable profits were being made using largely traditional methods."[656]

[656] J.R. Hume and M.S. Moss, Shipbuilders to the World: 125 Years of Harland and Wolff, Belfast 1861-1986. (Belfast: Blackstaff Press, 1986), pp. 378-381. The authors here were discussing the launching of the S.S. *Canberra* in 1960. This was the last major vessel built with a partially riveted hull. The *Canberra* is used to illustrate the point that even though Harland and Wolff management knew that other shipyards had long since implemented all-welded construction, they declined to do so because it would cost money to modernize.

Such a wide-ranging restructuring of the shipbuilding industry might not have been possible at any time, but the presence in top management positions of men who had learned their trade during the bitter interwar years made the task even more formidable. Unlike what occurred after World War I, after World War II British shipbuilders deliberately chose to forego expansion because of their fear of another interwar slump; they had no faith that the post-World War II boom would last any longer than the ephemeral post-World War I boom had. Shipyard owners and managers remembered only too well the desperately hard years of the economically depressed 1920's and 1930's where shipyards had failed by the dozens and the only, exceedingly dim, ray of hope for saving any British shipbuilding at all was massive capacity reduction. In those interwar years they had seen it confirmed that modernization was no guarantee of profitability. They also believed those years had seen the British government abandon their industry at its time of most desperate need. While the post-World War II British shipbuilding industry was happy to call for all the government assistance Westminster was willing to dispense, shipbuilders were very wary of relying too much on it. For those shipbuilders who had survived the interwar period, government would always be too capricious, its commitment to shipbuilding too uncertain and too easily withdrawn.

Consequently, when men like Sir Graham Cunningham and documents like the DSIR and Patton Reports called for modernization and additional investment, their recommendations were viewed with a gimlet eye by tight-fisted shipbuilders still deeply mindful of the Great Depression years. Until the British Government became seriously involved in 1966 with the Geddes Report, such shipbuilding modernization

as did occur was piecemeal and scrimping. Unfortunately for British shipbuilding, by the time the British Government actually decided to take serious action on the industry's problems, Japan had a fifteen-year technological lead and Britain's European competitors were ahead by a decade. Britain only truly awoke to its need for massive change after its lead in the shipbuilding industry was long since squandered. Constrained by outdated facilities, antiquated production techniques, fear of recession and abrasive, self-defeating industrial relations, British shipbuilding between 1960 and 1982 fell further behind its international competitors with every passing year. In the final analysis, when shipbuilding technology evolved to meet changing customer demand, the British shipbuilding industry's failure to evolve accordingly led to extinction.

LABOR RELATIONS

The divergence in national labor relations policy between Britain and South Korea is one of the most important factors, if not the most important factor, leading to the collapse of British shipbuilding. Britain and South Korea had completely different policies and preferences when it came to dealing with organized labor, with the British going to great lengths to appease labor while the South Koreans restricted and eventually suppressed it. See Table 27 below for a comparison of time lost to labor activism.

Britain, whose Parliamentary system had more than a century of dealing with incorporating organized labor into the political structure, had eventually allowed labor's representatives into the political process as a way of obtaining their consent to it and preemptively coopting radical forces. Britain's organized labor had its own

political party, the Labour Party, and their dues and contributions provided the vast majority of Labour's financial support.[657] Consequently, organized labor interests in the 20th Century almost always found a fair hearing in government councils, particularly when Britain was being governed by a Labour administration. However, in the critical time period from the late 1960's until the 1984 National Union of Mineworkers strike, organized labor in Britain exercised an extraordinary influence on government policy. This was conclusively demonstrated in 1973-4 when violent industrial action by coal miners caused drastic national electricity cuts and forced Britain onto a three-day work week.[658]

Edward Heath's Conservative government, which had been in office since 1970, had been humiliated numerous times during its administration by union refusals to comply with government legislation. The 1973-4 miners' strike was the last straw. An exasperated Heath finally called a snap general election in February 1974, with the underlying theme being, "Who Governs Britain?" Given the presence of 300,000 presumably leftist union shop stewards in the country and the tremendous amount of national disruption caused by labor activism that the elected government clearly could not control, the question was a legitimate one that deserved a clear answer. Unfortunately, it didn't receive one.

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[657] Towers, Brian. "Running the Gauntlet: British Trade Unions under Thatcher, 1979-1988. Industrial and Labor Relations Review Vol. 42, No. 2 (Jan. 1989), p. 181.

[658] The miners picketed docks and storage depots preventing access to ships looking to unload coal and trucks intended for transporting it. The climactic action of the strike took place at Saltley, Warwickshire where as many as 10,000 miners showed up on 10 February to insure the closing of this critically important coal depot. The police, who were also there but with insufficient force to keep the depot open, conceded and allowed its gates to be closed. Margaret Thatcher, Education Minister for Heath's Conservative government at the time, later wrote that "There was no disguising that this was a victory for violence. From now on many senior policemen put greater emphasis on maintaining 'order' than on upholding the law. In practice, that meant failing to uphold the rights of individuals against the rule of the mob."

Heath obviously hoped to be returned to office with a greater majority and a mandate to tame the unions. Instead, in a very close election which set a record for the number of votes cast, the result was a hung Parliament with no party receiving a majority of seats. In the end, Heath could not form a coalition government and Labour's Harold Wilson returned to 10 Downing Street as the head of a minority government. It was widely accepted in Britain that unions had brought Heath and the Conservatives down and that if Britain was not yet in the grip of syndicalism, the country was certainly within hailing distance of it.[659] This state of affairs had a chilling effect on all British industry, shipbuilding not least.

It is pertinent to note here that Britain in 1970 lost almost 11 million man-days to strikes, the highest amount of time lost since the General Strike of 1926.[660] Injurious as that was, the situation further deteriorated in 1972 when industrial action cost British industry almost 24 million days of lost work.[661] The industrial discontent was exacerbated by the galloping inflation Britons were suffering: 19 per cent in 1974 and 26 per cent in 1975.[662] To compensate, wages had risen 28.5 per cent in 1974.[663] The problem of wages chasing inflation continued through the 1970's despite desperate attempts by the Labour Party to institute "incomes policies," which were voluntary agreements to limit pay raises. Labour was elected to office in 1974 largely due to its

[659] Towers, "Gauntlet," p. 169-182. Harold Wilson's 1974-1979 Labour Government passed legislation which provided unions unprecedented rights and left them in a much stronger position than they had previously held. Among those rights was the ability to apply to a government body, the Central Arbitration Committee, for legally enforceable awards on the grounds that workers in one plant were being paid less than the generally prevailing rates for the industry as a whole. The Employment Protection Act of 1975 also provided that workers engaging in industrial action could not be dismissed selectively; all involved workers must be either permanently dismissed or retained as a group. Workers recognized the shifting balance of power; trade union membership in Britain rose to its highest level ever by 1979.
[660] Alwyn W. Turner. Crisis? What Crisis? Britain in the 1970's. (London: Aurum Press, 2008), p. 11.
[661] Ibid. The smallest number of days lost in any year of the 1970's was 3.2 million. See Table 27.
[662] Ibid., p. 101.
[663] Ibid.

claim that it could control Britain's unions. Labour was dismissed from office in 1979 for having conclusively demonstrated its inability to do so, the British electorate correctly deducing that Margaret Thatcher was a very different person than Edward Heath and that under her leadership Conservatives would be better at the task.

The difficulties caused by industrial action in British shipyards have already been discussed at length elsewhere in this paper. However, to see them in proper context, the following point needs to be emphasized. Britain in the late 1960's and 1970's was a nation gripped by labor activism to a degree and duration never before seen in that country. In those years British shipbuilding lost more time due to labor activism than any other British industry.

In contrast to Britain, Park's South Korean government and its *chaebôl* partners recognized that Korea's low wage and benefit costs constituted the largest part of Korea's comparative advantage in manufacturing. They were fully aware that the only lever they had for breaking into established markets was the temptingly low price of their products. This was particularly so at the inception of Korea's shipbuilding effort given that there was no demonstrated proof Korea could properly build modern ships. Potential ship buyers already had suppliers and in 1972 Korea was trying to break into a shipbuilding market already heavily overpopulated with experienced competitors.

Given the magnitude of the world shipbuilding slump after 1974, even being the lowest-cost provider was no guarantee of success. However, it was South Korea's only hope, which meant all costs had to be restrained as tightly as possible. Much of the cost of ship construction in those early days of Korean shipbuilding came from

imported materials and equipment. These prices South Korea could not control.[664] What South Korea could control was the cost of the Korean labor required to build the ships. That fact was not lost on the South Korean government. They addressed it in 1972 with the *Yushin* Constitution's formal grant of Presidential rights to restrict labor activities.[665]

From the early 1960's, under the slogan, "선성 장 후 분배 (growth first, distribution later)," the South Korean government diverted the economic surplus produced by labor productivity gains into industrial investment instead of higher wages. In 1961 the government instituted the Federation of Korean Trade Unions (FKTU) which, in practice, did more to restrain unions than to represent them.[666] Organized labor in South Korea under the Park regime was always considered as a necessary evil at best but it was not directly suppressed until the introduction of the 1972 *Yushin* Constitution.[667] The *Yushin* Constitution allowed organized labor to be stripped of the legal right to collective action, instead forcing labor groups to receive permission

[664] POSCO did not start to ease the shipbuilding industry's reliance on imported steel until after 1975. Prior to that almost all shipbuilding steel had to be imported. Most of the required steel came from Japan. Most of the equipment came initially from Europe but Hyundai gradually changed its sources of supply to Japan where possible.

[665] San-Soo Kim, "Labor Policy and Industrial Relations in the Park Chung-Hee Era," Developmental Dictatorship and the Park Chung-Hee Era: The Shaping of Modernity in the Republic of Korea. Editor: Byeong-Cheon Lee. (Paramus: Homa and Sekey Books, 2006), pp. 162.

[666] This institution was created on August 30, 1961, after the junta lifted its injunction on trade unions. The South Korean Government was always wary of organized labor. Given the long track record of organized labor serving as a stalking horse for Communist goals, their suspicions were understandable if not necessarily justified. In practice, the FKTU served more as a vector for transmitting government directives to unions than as a communicator of union opinions to government.

[667] Hyug Baeg Im, "The Origins of the *Yushin* Regime: Machiavelli Unveiled," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 256-257. This is not to say that the South Korean Government did not already have a strong method to control labor; they did. Article 9 of the 1971 Act of Special Measures for National Security and the 1970 Temporary Special Act on Labor Unions and Disputes Involving Foreign Invested Firms tightly restricted the freedom of unions with regard to collective bargaining and labor activism. These laws provided government with authority to restrict or prohibit labor activism at any time it chose to do so; in some cases activism was formally banned. What the 1973 implementation of the *Yushin* Constitution did was formalize this authority.

from a government body prior to any such behavior.[668] Laws governing labor activity were explicit in banning any of the normal methods of labor activism such as strikes, sit-ins, overtime stoppages, etc. without first obtaining government permission.[669] For some export industries located in free-trade zones and created through foreign investment, Korean law expressly forbade industrial action of any type for any reason.[670] The Federation of Korean Trade Unions fully supported these governmental restrictions.[671]

More importantly, after the *Yushin* Constitution was instituted, violations of the laws prohibiting labor activism were treated as criminal offenses punishable under criminal law.[672] Prior to the constitutional change, labor disputes often ended up in the civil courts with fines as punishment. After *Yushin* labor leaders contemplating breaching the law quickly learned the price for such violations would be long prison terms and quite probably disbandment of their union.[673] Consequently, it must be acknowledged that the South Korean government deliberately suppressed organized labor in order to support the *chaebôls* leading Korea's industrialization effort. As a result Korean workers worked far longer hours than anyone in the industrialized world.

Park's government was undoubtedly authoritarian, although it could have been much more so than it was. It generally operated with a relatively light touch compared to

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[668] Ringen, "Social Policy," p. 54. This body was the Office of Labor Affairs (OLA). Deyo notes that the selection of a former national police director as Director General of the OLA gives something of an indication as to the purpose this organization was to serve. Deyo, "Beneath the Miracle," p. 136.
[669] John Minns, "The Labour Movement in South Korea," Labour History, No. 81 (Nov. 2001), pp. 181. Minns noted that strikes could not be initiated until three months after the beginning of a dispute and that the government had the authority to order an immediate return to work.
[670] Deyo, "Beneath the Miracle," p. 136.
[671] San-soo Kim, "Labor Policy," p. 174.
[672] Eun Mee Kim, "Contradictions and Limitations of a Developmental State: With Illustrations from the South Korean Case," Social Problems. Vol. 40, No. 2 (May 1993), p. 234.
[673] Kwon and O'Donnell, pp. 29-30.

Table 27: COMPARISON BETWEEN INDUSTRIAL CONFLICT IN UNITED KINGDOM AND SOUTH KOREA, BY YEAR[674]

YEAR	S. KOREA WORK STOPPAGES	S. KOREA WORKERS INVOLVED ('000s)	S. KOREA WORKING DAYS LOST PER THOUSAND WORKERS	S. KOREA WORKING DAYS LOST TO STOPPAGES ('000s)	U.K. WORKING DAYS LOST TO STOPPAGES ('000s)
1965	12	4	2.1	19	2925
1966	12	31	4.4	41	2400
1967	18	3	1.1	10	2787
1968	16	18	6.8	63	4690
1969	7	30	17.4	163	6846
1970	4	1	0.9	9	10980
1971	10	1	1.1	11	13551
1972	0	0	0	0	23909
1973	0	0	0	0	7197
1974	58	23	1.4	17	14750
1975	52	10	1.1	14	6012
1976	49	7	1.3	17	3284
1977	58	8	0.6	8	10142
1978	102	11	1.0	13	9405
1979	105	14	1.2	16	29474
1980	206	49	4.2	61	11964
1981	186	35	N.A.	31	4266
1982	88	9	0.8	12	5313

[674] Deyo, "Beneath the Miracle," pp. 60-61. This chart is compiled from ILO *Yearbook of Labour Statistics* (various years), *Bank of Korea: Monthly Economic Statistics* (various issues), and the *Korean Statistical Yearbook* (1985). The U.K. statistics are taken from the U.K. Office of National Statistics, "Labour Market Trends," 2003.

TABLE 28: HOURS OF WORK IN MANUFACTURING, 1960-1985[675]

Hours per Week						
Period	Korea	Greece	Mexico	Japan	U.S.A.	Germany
1960-69	55.5a	43.9	45.9	45.4	40.6	44.0
1970-79	51.8	42.9	45.6	41.1	40.1	42.1
1980-85	53.8	39.1	46.1	41.2	40.0	40.9

a. Average for 1963-1969.

most regimes wielding that much untrammeled authority.[676] Moreover, real wages were increasing very rapidly in Korea during the 1970's and most workers were seeing a major increase in their standards of living. Even though the increase was from a very low initial level, this fact undoubtedly tended to moderate labor discontent.[677]

As a student of history and a former member of Namnodong, Park knew that labor organizations could be dangerous adversaries and that they tended to be strongly left-wing in their politics.[678] His government responded to that threat by rewriting the laws to strip labor and its prospective organizers of any economic or political power. Park had no qualms about quickly crushing public defiance from any source and his regime made quite certain organized labor was not allowed to impede South Korea's industrialization.[679] South Korea dealt with its labor problems through legal

[675] Dornbusch and Park, "Korean Growth Policy," p. 398. Chart source: International Labor Office, Yearbook of Labor Statistics, various issues.
[676] Ringen, p. 19.
[677] Nam, "Building Ships," p. 194. Nam notes that from 1969 to 1979, real wages for South Korean manufacturing workers increased by 250 per cent.
[678] Lee, "Park Chung-Hee," pp. 241-247. According to Lee, Namnodong supported the Cheju and Yeosu uprisings.
[679] Park, "To Build a Nation," p. 179.

suppression, the domestic and military intelligence services and the police.[680] Democracy and true freedom for Korean organized labor did not arrive until 1987, by which time the market-shifting impact of Korea's low wage structure had already reaped its gains in the shipbuilding industry.

In Britain, organized labor had strength equal to, and sometimes greater than, either business or the elected government. It had clearly broken Edward Heath's Conservative government in Britain and arguably destroyed much of British manufacturing through making it economically uncompetitive. By contrast, Chung-Hee Park's government decided organized labor's influence in the political process was a luxury South Korea could not afford. From the outset Park's regime maintained a very close rein on organized labor and, during the most important decade of Korea's shipbuilding industrialization, it legislatively insured that organized labor had no power at all. That this was absolutely a part of Korean business strategy for increasing Korean shipbuilding's economic competitiveness is shown by the following comment made by MP Dr. Norman Godwin to the British House of Commons:

> James Davis, a director of Kleinwort, Benson Ltd., spoke at a meeting of the Greenwich Forum about a visit that he and other western European industrialists made to South Korea, and about the attitudes of shipbuilding directors there. He said: The best way of describing their attitude is perhaps by describing the extreme answer we got from one of them, Mr. Hong of Daewoo. He said that of course we all came from halftime Europe. That was an opening remark and we asked him what he meant by it. He told us that his men expect to work six-and-a-half days a week, unless there was a big job on, in which case they could not take all that time off … They work intensively. He said,

[680] Amsden, "Asia's Next Giant," p. 324. Nam noted that prior to 1966, South Korean intelligence personnel (KCIA, police detectives or Counter-Intelligence Corps officers) visited the KSEC offices "an average of 4.7 times per month." After 1969, the surveillance grew much tighter. From June to December 1970, detectives visited the KSEC union offices 65 times and KCIA agents visited eight times. Nam stated that "the heavy police presence and the constant KCIA surveillance of union affairs continued through the 1970s and into the 1980s." Nam, "Building a Nation," pp. 190-191.

> 'the trouble is now it is a time of comparative advantage. It is Korea's turn. You had your turn in Europe. Japan has had its turn. Now it is our turn.[681]

It may have been Korean shipbuilding's turn but it certainly was not organized labor's turn. Neither Hyundai nor any other major *chaebôl* shipyard had any union presence until 1987.[682] This must be considered as a tremendous advantage for South Korea. One can only imagine what British shipbuilding might have been able to accomplish with an equivalently quiescent work force.

GOVERNMENT ECONOMIC POLICY

Because they were so intertwined, for the purposes of this discussion Korean government economic policy must be considered to include national industrial policy. South Korea, from the time of the 1961 military coup, was intent on modernizing its industry and promulgated five-year industrial policy plans to guide that process. The major restraint on progress was always the minimal availability of investment capital. Chung-Hee Park wanted to initiate a program of heavy industrialization as soon as he came to power in 1961. He was initially stymied in that effort because international aid donors did not think Korea was justified in doing so. Groups like the World Bank looked at South Korea and said there was no need for them to have steel mills or chemical industries; those inputs could be supplied from Japan. According to them, a poor but heavily populated country like Korea held comparative advantage in labor-intensive light industry and import substitution. If there was to be any investment at all from donor sources, those were the areas to which it would be directed.

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[681] Hansard, House of Commons Debates, 09 January 1985, Vol. 70, cc 823.
[682] Nam, "Building a Nation," p. 207. It took lengthy, large-scale, and violent strikes to obtain them.

Chung-Hee Park knew his country and its people better than the World Bank and the U.S. Agency for International Development did. He had the vision to see Korea as a major industrial power, possibly even a "second Japan," and was determined to give his nation a chance to attain that goal. He was aware that it would take a tremendous amount of sacrifice on the part of his people and that painful and difficult choices would have to be made. However, given his constant concern with the looming existential danger from the North, Park believed there was no choice but to force South Korea to make the best effort humanly possible. Park shrewdly leveraged his nation's people and its diplomatic position to obtain desperately needed investment capital. He then used that capital to pursue a deliberately unbalanced development plan aimed at making Korea an export-intensive industrial powerhouse.

Many other parts of the economy, such as agriculture, either stagnated or suffered due to the deliberate allocation of most available investment capital to the heavy industrial sector and the *chaebôl* who operated it. Workers certainly had their wages suppressed and their rights curtailed where those rights were not completely expunged. Park and his regime did this knowingly; their mantra was, "선성 장 후 분배 (growth first, distribution later)" and they hewed as closely as they could to that line.

Though Park suppressed organized labor, he most certainly was not a puppet for the *chaebôl*. Once in power Park quickly and deliberately broke them to his will. He forced them to do his bidding primarily by controlling their funding.[683] He had other, more forceful means at his disposal for commanding compliance but generally

[683] Woo, "Race to the Swift," p. 191. Woo's primary argument is that the Korean developmental state gained its most powerful means of peaceful inducement by repressing independent financial markets and arrogating all financial authority to itself.

preferred not to use them; it was less publicly disruptive to just sharply yank the financial choke chain. *Chaebôl* owners were generally very bright people; it did not take them long to realize that conforming to government policy made life much easier and more profitable.

Park's demand from them was simple: he wanted an exponential increase in exports. He insisted the *chaebôl* find or make something that would sell to foreign customers so as to procure the desperately needed hard currency and investment capital. *Chaebôl* owners who met the challenge of becoming successful exporters quickly found that everything the South Korean Government could provide in the way of assistance was available to them and life was very good. Those who would not, or could not, comply went to the wall.

For Korea's Third Five-Year Plan (1972-1976), Park determined shipbuilding was one of five heavy industries Korea was going to aggressively develop. Park had risked his political life to obtain the money for the POSCO integrated steel mill for Korea. Having chanced and won such a dangerous gamble he was not going to see it wasted; he was absolutely determined that POSCO would be successful. Park envisioned shipbuilding as one of the major contributors to POSCO's future success through being a very large and solidly reliable consumer of POSCO's products. However, it was abundantly clear that establishing a world-class shipbuilding industry from almost nothing was going to be a very difficult task. Park dealt with the issue by handing the shipbuilding portfolio to Ju-Yung Chung, promising him full support and turning him loose. Park knew his man; he had faith that Chung would find a way to build large ships in South Korea and Chung justified that faith. Machiavelli noted that

the quality of a leader can be determined by the caliber of his subordinates. Judging by that criterion and using Ju-Yung Chung as a salient example, President Chung-Hee Park rates very highly.

Against all the odds, Chung succeeded. He procured a foreign buyer for multi-million dollar vessels to be supplied from a non-existent shipyard. He procured foreign loans to build that shipyard when he had no demonstrable experience in shipbuilding. He built the ships at the same time the shipyard was being constructed and persuaded his people to work inhumanly long hours for years to do it. He delivered his vessels in reasonable time and they worked. At its inception no one outside of Korea thought Chung could accomplish this feat; few people inside Korea other than Chung-Hee Park did. The skepticism was justified since nothing like what Chung was proposing to do had ever been done before. As Sung-Hyuk Hwang said in recalling the construction of the Hyundai Ulsan Shipyard, "In ignorance they had the courage to venture into unknown territory."[684] Ignorant though they may have been at the start, Chung and Hyundai succeeded in establishing the world's largest and most modern shipyard. They made it happen through a combination of tremendously hard work and relentless determination.

Park had promised Chung full support and kept his word. As an example, when Chung got in trouble due to the collapsing shipbuilding market in the mid-1970s, Park used the Korean Government to help Hyundai. Three of the first 10 VLCCs Hyundai constructed were refused by their initial owners due to the crash in the tanker market and there was no chance of finding another buyer. Chung in 1976 used those vessels

[684] Hwang, "Let There be a Yard," p. 41.

to start his own shipping line, which would become Hyundai Merchant Marine.[685] Park guaranteed work for Chung's VLCC fleet by facilitating the quick passage of legislation reserving to Korean vessels at least 50 per cent of all crude oil delivered to the national oil refinery.[686] Chung repaid Park's confidence by successfully concluding several huge construction and shipbuilding deals in the Middle East. The more than one billion dollars of work Chung secured in the Middle East represented a financial coup equal to those arising from Park's normalization of Japanese diplomatic relations and Korea's involvement in the Vietnam War.

Chung was a brilliant businessman who knew every trick in the book. That said, he always delivered what he promised. The money he made underbidding Western companies for Middle East construction contracts was money he used to support Hyundai Heavy Industries as the world slowly worked through shipbuilding's disastrous 1970s decade. Hyundai's profitable components cross-subsidized unprofitable ones until they too became profitable, and Hyundai under Ju-Yung Chung could always depend on President Chung-Hee Park to provide whatever assistance the Korean Government could give to forward his projects. Chung and Park launched Korea into the shipbuilding business and gained market share when every other major shipbuilder on Earth was either cutting back or getting out of the business entirely. The key to their success in shipbuilding was perseverance and a willingness to do whatever it took to be the "last man standing" in the industry.

[685] Hyundai, "Traditions of Excellence," p. 68.
[686] Ibid.

Amsden refers to massive behind-the-scenes subsidization of Korean industry.[687] Shipbuilding in the 1970s and early 1980s would have been the most likely beneficiary of such subsidization and there is undoubtedly much truth in Amsden's claim.[688] Still, in an era when all the major players were subsidizing their shipyards as well, Korea was not doing something others did not do. Korea succeeded where others failed because they worked harder at it and refused to quit despite the costs. The most powerful politician in South Korea, Chung-Hee Park, and the nation's most competent industrialist, Ju-Yung Chung, were intensely focused on this industry and determined to see Korea become a world-class shipbuilding nation. Working in close partnership, they together wielded the full power of the South Korean Government and Korea's richest *chaebôl* to do whatever it took to make that happen. With that much support backing the already impressive range of comparative advantages enjoyed by Korean shipbuilding, it was certain Korea would establish a major presence in the industry.

Because of the opacity of financial accounting with regard to both the South Korean Government and the various segments of the Hyundai *chaebôl*, no one will ever truly know just how much money was spent in subsidizing South Korea's entry into world shipbuilding.[689] It was undoubtedly a tremendous sum. However, it is quite likely that Korea did not spend as much money on clandestine subsidization as Britain spent publicly. No matter where they were, the commercial shipbuilders who survived the slump of the 1970s did so because they had well-run, technically competent,

[687] Amsden, "Asia's Next Giant," p. 105.
[688] Ibid., pp. 275-278.
[689] The same comment can be made about the Daewoo and Samsung shipyards, both of which were heavily cross-subsidized by other sections of their *chaebôl*. Daewoo almost went bankrupt in 1989 because the shipyard's losses dragged down the rest of the organization. The South Korean Government saved the Okpo Shipyard by turning it over to the Korea Exchange Bank.

extremely efficient yards that utilized modern production techniques and delivered excellent value for money. They also either had rich parent companies or direct governmental support because every shipbuilder that survived through the 1970s and 1980s did so with the help of external funding. It was impossible to do otherwise; there was too little business at too low a price for a commercial builder of large ships to survive alone.

With regard to the effects of government economic policy on shipbuilding, a special subset of that policy very pertinent to this discussion concerns the financial industry as it existed in both countries at the time. In Britain, there is arguably no more influential part of the private sector. London remains *primus inter pares* with regard to world financial centers and the financial services sector of the British economy was critically important to Britain in the second half of the 20th Century.

It would be hard to argue that manufacturing was as important to Britain as finance at any time in the 20th Century; certainly in the years from 1960 to 1990 there was no question that finance was more important. British manufacturing in its entirety in that period did not come close to matching the value of the British financial industry.[690] British manufacturing was then in rapid decline as shown by the many failures of British industries such as British Steel, British Leyland, British coal mining and eventually British Shipbuilders, among others. Successive British Governments, both

[690] Hansard, House of Lords Debates, 16 May 1973, Vol. 342, 858, 883, 896. The financial industry includes banking, insurance, foreign exchange dealings and commodity trading. In 1971 the financial industry was responsible for net earnings of £580 million; the car/chassis and steel industries had a gross income of £719 million but the net value was much less due to the cost of the imports needed to produce these exports. In this debate Lord Selsdon pointed out that in the preceding 18-year period Britain's invisible earnings were £14,600 million while its deficit on visible trade was £3,600 million.

Labour and Conservative, pumped many millions of pounds into these loss-making industrial sectors in ultimately futile efforts to retain a British presence in them.

Subsidization is normally a zero-sum game.[691] To subsidize an unprofitable economic sector there generally must be a profitable one from which the funds can be extracted. The financial markets of the City of London provided one of the most profitable sectors of the British economy. Moreover, financiers and merchant bankers had the social cachet and the close connections to the British Establishment necessary to insure that their opinions and interests were always given extremely careful consideration. This was something that could generally not be said for "metal-bashing" industrialists.[692]

With regard to the shipbuilding industry there is no doubt British politicians of both parties were concerned about its decline. However, even those from the Labour Party whose interests were most affected recognized that relative to British manufacturing in total it was a relatively minor industry and that compared to the British financial industry it hardly registered.[693] Consequently, when weighed in the balance of national importance, the concerns of the financial industry were always certain to be adjudged as of greater merit than those of any industrial concern. If circumstances

[691] Subsidization can obviously be done by monetization as well but the resulting inflation hurts the entire national economy. Consequently, inflationary subsidization has a relatively limited scope of use. For a good example of this, see Indivar Kamtekar, "England and India, 1939-1945," Penultimate Adventures With Britannia: Personalities, Politics and Culture in Britain. Ed. Wm. Roger Louis (New York: Palgrave Macmillan, 2008), p. 129-134.

[692] P.J. Cain and A.G. Hopkins spend much time in British Imperialism discussing the metamorphosis of Britain's landed gentry into the merchant banking and investment banking classes. They, along with the political elite, were the British Establishment.

[693] BAH Report, p. 107. In 1972, the combined financial turnover of all twelve shipbuilders examined in the BAH Report would have amounted to £250 million, which would have made the industry the 56th largest industry in the United Kingdom. The total number of employees was slightly under 70,000, a figure which equated to one-quarter of one per cent of the United Kingdom's working population and three-quarters of one per cent of the United Kingdom's manufacturing employees.

forced a British government into having to choose between sacrificing the interests of manufacturing or finance, manufacturing was going to the wall and the decision would not be close.

Conversely, in South Korea the banks were nationalized as one of the first acts of the junta after the 1961 coup. From then until the 1980's, banks were nothing more than organs of the "developmental state" charged with providing financing to companies approved by the South Korean government. The South Korean government told the bankers who to lend to, how much to lend them, the time span of the loan and what interest rate to charge. Bankers were government employees who had no choice in the matter other than to comply, resign or be fired.[694] Given that the South Korean government during the Park era was determined to keep risk-taking *chaebôl* exporters afloat at almost any cost, this meant the banks were forced to make large numbers of loans that were not economically sound and which ended up on their books as massive, often non-performing, liabilities.[695] Completely subordinated to the manufacturers of the exporting economy, South Korea's nationalized banks, just like the *chaebôl*, were kept afloat by questionable bookkeeping, government financial guarantees and the blatant use of state power to distort the domestic markets. Unlike Britain, in Chung-Hee Park's South Korea export manufacturing reigned supreme in the list of governmental support priorities.

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[694] Byung-Kook Kim, "The Leviathan: Economic Bureaucracy," The Park Chung Hee Era: The Transformation of South Korea. Editors: Byung-Kook Kim and Ezra F. Vogel. (Cambridge: Harvard University Press, 2011), p. 213. Kim notes that the Ministry of Finance, which controlled the nationalized banks for the South Korean Government, between 1965 and 1967 had its minister fired five times and its vice-minister fired four times. Park's industrial policy called for using the Ministry of Finance as "a mere resource mobilizer for industrial projects decided by the Economic Planning Board and the Ministry of Commerce and Industry." Kim believes that "the Ministry of Finance thought it had no choice but to rebel" because government policies on financial expansion "meant a de facto divestiture of its coordinating authority on the basis of interest rates and foreign exchange policy." Their complaints were legitimate but against governmental policy. One suspects that the sixth head of the Ministry of Finance finally understood that message.

[695] Woo, "Race to the Swift," p. 170-172.

As a nation with a mature, developed economy and large international commitments, Britain had many more interests to consider than South Korea. A single-minded mercantilist drive to increase exports was not something Britain could do without suffering serious repercussions. Both the Geddes Report and the BAH Report are notable for warning that Britain risked retaliation from other nations should it choose to implement shipbuilding subsidization over a certain level. British officials, formulating trade and industrial policies for a nation that had a worldwide commercial presence and which made a great deal of its income from "invisible" earnings, had to take such threats very seriously.

South Korea, on the other hand, could adopt mercantilist policies because they had nothing to lose by doing so. As an impoverished and somewhat diplomatically isolated parvenu trying to break into the world economy, it had no national investments elsewhere that could be held hostage and no "invisible" income from financial service sectors to lose. Moreover, the world economic system in what Woo has called the "Development Decade" of the 1960's facilitated such mercantilist behavior by allowing undeveloped countries like South Korea to maintain protectionist tariff barriers in their own countries while "dumping" their manufactured goods in the markets of more developed economies to obtain market share. South Korea's government under Chung-Hee Park was free to use any and every possible political and economic method that it could devise to help South Korean businesses meet export goals and expand their markets. The normalization of diplomatic relations with Japan, the provision of troops for the Vietnam War, the massive behind-the-scenes subsidies, the suppression and subordination of finance and organized labor,

all are examples of the lengths to which the South Korean government under Park would go to support and assist Korean businesses.

It should be noted here that the South Korean government's economic policies also had a component that British policies did not and could not match. This component was political stability. South Korea's institution of the new *Yushin* Constitution in 1972 effectively allowed Chung-Hee Park to retain the presidency for as long as he chose to occupy the office. Under Park's authoritarian leadership, the South Korean government and Korea's big businesses had evolved a close-knit symbiotic relationship. The *chaebôl* were implicitly assured that if they met their government-set export targets, the government would back to them to the hilt and find ways to compensate them for incurred losses. Park was known and trusted as a partner who kept his word and supported even failing *chaebôl* until every measure of government support had been tried short of nationalization.

Britain's parliamentary democracy held no such certainty. A government could be brought down by a motion of no confidence at any time and there was no guarantee of policy continuity across administrations.[696] Business leaders considering investment under a Conservative administration would have been foolish to disregard the loud voices in the Labour Party clamoring for nationalization of "the commanding heights of industry" starting the day after a Labour electoral victory. Those calls certainly did not fall on deaf ears in Britain's private shipbuilding sector which, while loudly calling for government capital investment in the industry, resolutely declined to commit private capital to it. The British government itself added to the uncertainty by

[696] There were two national elections in 1974 alone.

its repeated insistence after every shipbuilding industry subvention that the subvention in question was the last one, after which no further support would be given and the industry would be cast adrift to sink or swim on its own. Whether the politicians, Labour or Conservative, who were making those threats actually believed them to be serious at the time they were spoken is moot. Their effect on public perception was to make all parties concerned with British shipbuilding acutely aware that the industry could not survive without government support and that its continued existence depended on a very unwilling partner whose withdrawal was only a matter of time.

Despite the huge sums expended on it, British government support for shipbuilding was fitful, grudging and generally exasperated. There was never any sense among British shipbuilders that the British government saw their industry as of crucial national importance and was determined to see it through to success in the manner that Park's South Korean government displayed. British shipbuilders started out undercapitalized; the British government's shipbuilding industry policy, while actually providing a considerable amount of funding for capital improvements, negated much of its impact by its penny-packet, piecemeal disbursement and its abysmal failure at public relations for the industry.

Nor did any British government ever take the steps it easily could have to insist that the British shipping and offshore industries patronize British shipbuilders or that British steelmakers provide British shipyards with discounted products. Unlike President Park, no British Prime Minister of either Labour or Conservative persuasion ever considered shipbuilding a matter of personal interest. The only British political figure of major public note to be involved with shipbuilding was Labour's Tony Benn,

a stormy petrel whose interest almost certainly hurt as much as it helped.[697] For Heath, Wilson and Callaghan shipbuilding was a declining industry that had far too many problems and was best kept at arm's length.

It cannot be said that the British government provided insufficient money; they did not. However, what was also needed was leadership and vision, two critical qualities that proved to be sadly lacking in both the public and private sectors. With regard to shipbuilding, the Geddes Report in 1966 trenchantly asked the question, "If Britain cannot stand on this front, where does she mean to stand?" Given the importance of shipbuilding to Britain's past, Geddes was right to ask it. However, by 1983 it was clear Britain needed an answer to the second half of that question because there was no longer any doubt that Britain could not "stand on this front."

In South Korea, the government's relation to shipbuilding was very different. President Park took great interest in the development of the Hyundai Heavy Industries Ulsan Shipyard, the largest shipyard in Korea. He went there often and kept close tabs on the progress of its construction and development. He met with Hyundai Chairman Ju-Yung Chung on at least a monthly basis if not more frequently. Park saw shipbuilding as a logical and required extension of Korean industrialization once Korea was capable of making its own steel. Shipbuilding, for him, was one more step toward *pukuk kangbyeong* in that it would increase export earnings and reduce Korean dependence on imports. When POSCO finally began putting out ship-suitable steel in

[697] Turner, "Crisis," pp. 37, 40. Benn was despised by most members of the Conservative party as a traitor to his class and a radical leftist malcontent. Anything which Benn favored would be almost certain to draw a knee-jerk Conservative response against it. This propensity was humorously captured in a British television program entitled *George and Mildred*. One of the major characters, Jeffrey Fourmile, "a stalwart of his local Conservative Association," had read in his newspaper that unemployment in Britain had reached 1.5 million. Fourmile solemnly declared to his wife, "I blame Anthony Wedgwood Benn." His wife replied, "Oh Jeffrey, you blame him when you get dandruff!"

1975 it was already agreed that their biggest customer for thick steel plates would be Hyundai and that Hyundai would receive them at manufacturer cost or below. Would-be Korean shipowners found that once Hyundai was in business the South Korean government took a dim view of overseas procurement for any vessel that could be built in Korea. In short, Korea approached the business of shipbuilding just as if it was a military campaign. All Korean resources were put at the disposal of the export drive and the focus stayed on that drive because the man at the top of the South Korean government, Chung-Hee Park, made it very clear it was the nation's most important priority. Shipbuilding was a major part of that export drive.

It must also be remembered that shipbuilding represented different things in each country. In Britain, it was a job. Not a really good job and certainly not a great job, but a decent job. Moreover, it was often the only job on offer in some places and thus desirable even though the work was hard and the conditions usually cold and dirty. No one in Britain was going to get rich from shipbuilding in the 1960s and 1970s. The best they could hope for was continued employment and ability to stay off the dole. If offered a choice between shipbuilding and an equivalently secure and well-paying job, most British shipbuilders would have moved without a qualm.

In Korea, shipbuilding jobs fall on the scale between good and excellent. The industry is considered critically important to the nation and the average citizen knows this. Working for one of the *chaebôl* in an export industry means good pay, excellent benefits and social status. It is common to see Koreans in Ulsan, Gohyeon and Okpo wearing their Hyundai, Samsung or Daewoo work uniforms in town because they are proud of working for those companies and want people to know they work there.

Bright and talented university students compete fiercely for internships and jobs at the major shipyards. It is telling that in a country with the lowest birth rate in the OECD, there are many baby carriages to be seen on the streets of Okpo and Gohyeon, far more than are usually seen in cities of equal size. Being a shipyard worker in one of the big shipyards in Korea means one has a good present and a bright future, a future worth working and sacrificing for. On a relative scale, the rewards of being a shipbuilder in Korea since the 1970s have always been higher than for the equivalent job in Great Britain.

In the final analysis, the three main reasons why Britain lost the industry and Korea gained it, shipbuilding technology, labor relations and economic policy, come down to one salient fact. South Korea wanted this industry and was willing to endure whatever financial and individual sacrifices had to be suffered to win and keep it. Britain was not. Both countries faced serious challenges that necessitated major capital investment and radical change in order to be a competitor in the last half of the 20th Century. Though both countries grappled with those challenges, only South Korea met them successfully. Both countries wanted the work. South Korea just wanted it more.

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